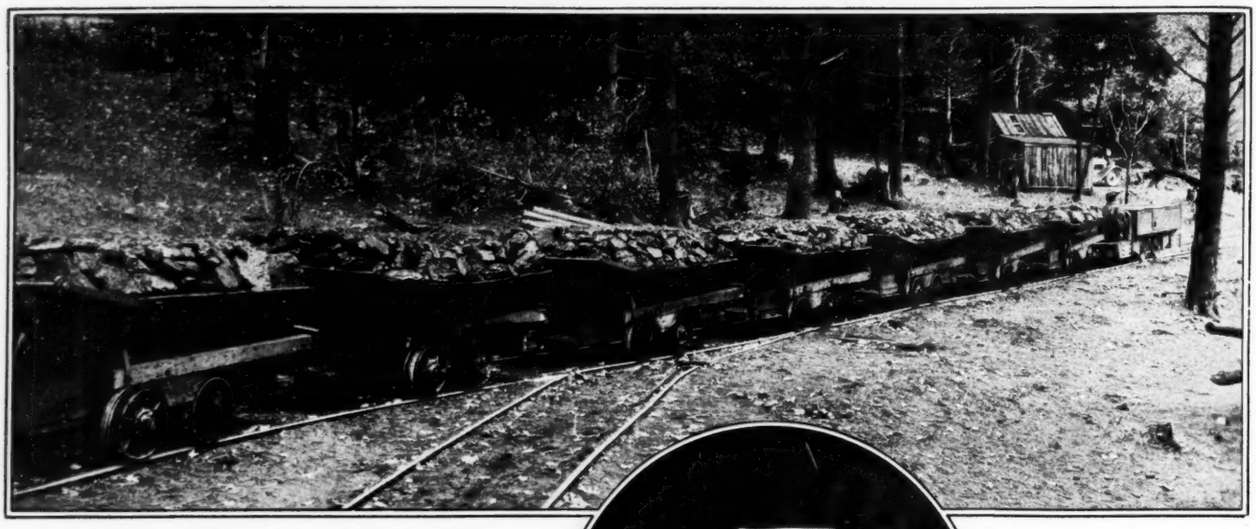
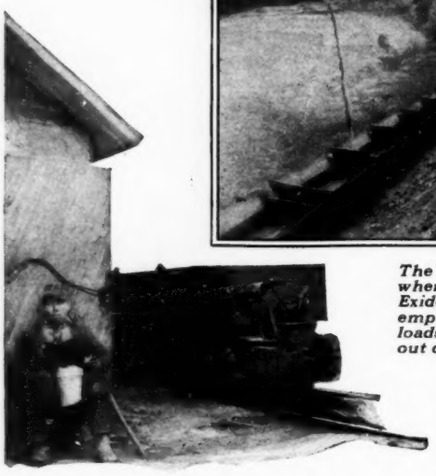


An Exide-Ironclad-equipped motor hauling a heavy trip up a steep grade at W. R. Gallagher & Bros. Coal Company, Houtzdale, Pa. An Exide-Ironclad Battery always has plenty of power in reserve for grades or extra heavy loads.

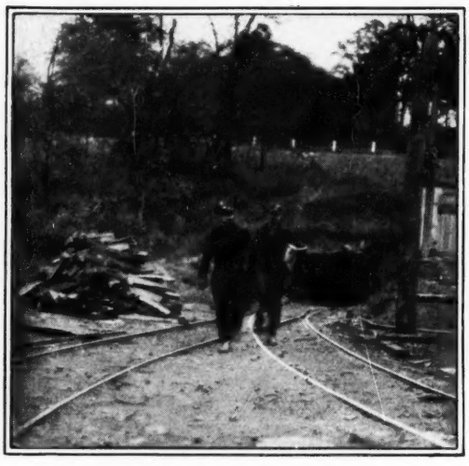
How many cars did you load and ship today? Many mines that have tried Exide-Ironclad Batteries have found the smoothness and efficiency of their haulage service so increased that more tons go over the tipple.

The empties are ready, but where is the motor? When an Exide-Ironclad is on the job empties are hustled in and the loads brought right out—without delay.

* * *



The motor is ready to take the empties in and the motorman is giving the Exide-Ironclad a "boost" while he eats his lunch. The battery takes its charge quickly, easily, and with little waste of current.



The miner and his helper rarely have to quit work for lack of cars, when the gathering motors are equipped with Exide-Ironclad Batteries.

Hauling more coal for less money

MORE and more are the important coal mines of this country standardizing on Exide-Ironclad Batteries for haulage service. They are doing so because they have found this battery handles the most coal, in the quickest time, at the lowest cost.

It does this because its first cost is reasonable, its life long, its power and speed great, its charging efficiency high, and its repair and maintenance cost negligible.

It will pay you to know more about Exide-Ironclad Batteries. A representative from our nearest branch will gladly call, or you can write for free booklet No. 1791, "Facts for Consideration in *Selecting a Battery* for Locomotive Service."

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THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia

Exide Batteries of Canada, Limited, 153 Dufferin Street, Toronto

Devoted to the Operating, Technical and Business Problems of the Coal-Mining Industry

Volume 29 — New York, April 1, 1926 — *Number* 13

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COAL AGE

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With which is consolidated "The Colliery Engineer" and "Mines and Minerals"
R. DAWSON HALL, *Engineering Editor*

Inching Toward Safety

Coal Age is specializing on mine accidents, for only by due consideration of the causes of these can we attain safety. The Minister Stein explosion will be described next week and its causes discussed. No gas had even been found where the explosion took place, but it may have been there in sufficient quantity to ignite when the shot that blew up the mine was fired. It was only a small shot, and some will wonder if mine officials and the state authorities were right in visiting it with the blame when there were so many other possibilities present. But the story of the explosion, even if the cause has been wrongly assessed has several morals for all of us to draw, and M. Touwaide, the author has a lucid way of presenting them.

Taking the Dirt Out of Coal

What shall be done with bone coal? Some believe that if the operator can't use it himself, he can't afford to waste it and should send it to market in the fine sizes. Much coal has to be wasted to lower the ash content materially after once the segregated slate is removed. But whatever the operator does decide, it should be based on the facts and not on a guess as to the ash analysis he prefers. He should be able to get a mathematical figure to show just what he can afford to throw away and what he is obliged to market. He should enter those markets only that are adapted to his coal. The article helps him to decide on the dividing line.

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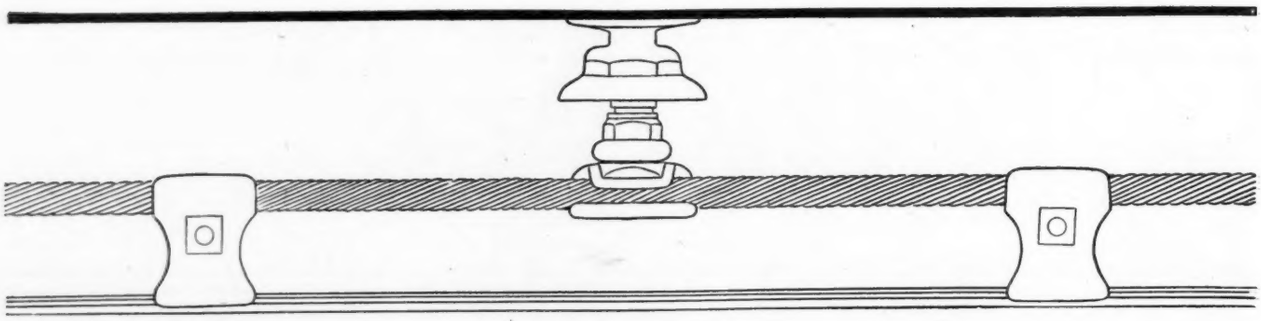


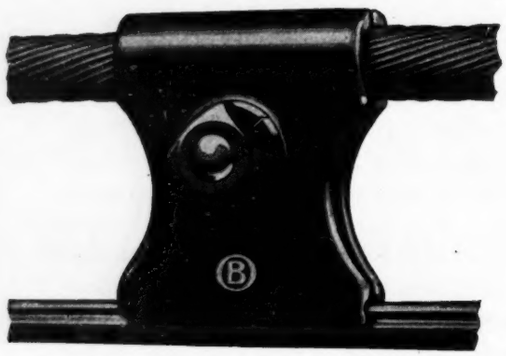
A Flexible and Economical Construction

It is obvious that flexibility in the overhead prolongs the life of the trolley wire and fittings themselves, and reduces the wear and tear on trolley wheels and bushings. Mining practice is tending toward catenary construction for high grade, permanent work. But heretofore, the lack of a simple method with inexpensive fittings has delayed progress.

O-B has now contributed the solution of this problem.

O-B Bulldog Cable Clamp

A cable sling with clamping jaw, which grips the cable tightly and will not let it slip. It is screwed onto the standard hanger. Uses the familiar Bulldog clamping principle—a turn or two with an ordinary wrench supplies ample grip on the cable.



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Devoted to the Operating, Technical and Business
Problems of the Coal-Mining Industry

R. DAWSON HALL
Engineering Editor

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Time for a Showdown

ONE OF THE LEGACIES of the late anthracite tie-up has been the accumulation of orphan cars of bituminous coal and coke rejected by consignees after hard-coal mining had been resumed. At one time there were 1,200 such cars blocking railroad sidings in and around New York. While less has been printed about conditions in other cities, the rejection evil has been felt with varying degrees of intensity all along the Atlantic seaboard.

Consignees who have blocked traffic in this manner allege in justification of their action that the coal and coke rejected was of inferior quality. That there have been cases where the greed of producers or intervening middlemen has led them to send forward fuel unsuited for domestic consumption is no doubt true. In such cases, assuming misrepresentation, refusal to accept the shipments was the proper course to be followed by the consignees. Nobody has the temerity to suggest, however, that, if the hard-coal suspension had continued, rejection on that or any other ground would have been the fate of most of the tonnage filling railroad terminal tracks.

Where coal has been refused so that the consignee might escape the burdens of a bargain made bad by changed conditions, such action constitutes sharp practice which cannot be too severely condemned. The strange part of the case, however, is that many producers who are the victims of such practice condone by a policy of inaction the unscrupulousness from which they have suffered. They decline to invoke the processes of law to compel observance of their contracts of sale. They seek relief in fulmination where they should seek redress at the bar of justice.

Such an attitude is hardly more defensible than the rejection of tonnage without just cause. Such a policy injures not alone the shippers directly involved but also those retail distributors who lived up to their purchase obligations even when they knew that it meant accepting tonnage which could be resold—if at all—only at a substantial loss. Condonation of sharp practices reflects upon the whole industry and makes sound merchandising and fair dealing that much more difficult.

If, as has been suggested in some quarters, loose methods in handling orders militate against a successful action at law, then the sooner the coal trade embarks upon a campaign of self-reformation the better it will be. There is something to be said upon the opportunities for confusion, misunderstanding and evasion inherent in a lack of fixed, uniform standards of sizing and quality in the different producing fields. It is a subject worthy of further attention as a step toward improving merchandising in the future.

That, however, should not be set up as a bar to action in the present cases. Shippers of rejected tonnage who resort to technicalities to excuse their failure to defend their good name place themselves in the unenviable position where their own sales practices and integrity appear properly objects of suspicion.

Coal Dust at Lower Landings

MANY OPERATORS are gravely concerned over the quantity of coal dust suspended in the air at the working face and are searching for feasible schemes of eliminating this hazard. But at the mines of many of these same operators, coal is dumped in the path of the intake and tons of this dust are daily sifted into the air at the bottom of shafts and slopes, without much thought of the danger involved. The hazard of this practice is too great to be excused and is so important that it would justify the great expense involved in the construction of a third opening. In all cases the mine bottoms in which are installed dumping equipment should be neutral as to ventilation, on a separate split or on the return. Furthermore, possible agents of ignition should be kept away from this location.

It is true that an arrangement in which the air in the bottom is neutral would stop the travel of dust and allow it to accumulate within narrow confines, but the accumulation would be large enough to be exceedingly dangerous and the dust would have to be removed at frequent intervals. As some means should be provided for carrying away the coal dust as quickly as it is suspended in the air, and as air itself is no doubt the most convenient of the two, the separate split is the more logical provision. The arrangement might well involve a hood over the dump, from which could be led a suction pipe to the outside where a dust collector might be located.

In either event permissible electric motors or air should be used to operate the dumping equipment. Pneumatic power is peculiarly suitable to the operation of mine-dumping equipment, in which also it is fairly efficient.

Public Opinion and the Coal Industry

PUBLIC OPINION is rated by many students as the most effective force in the world today. Certainly that applies to the United States, and to the coal industry. When did John Lewis lose the recent anthracite strike? When he failed to enlist public good opinion and support, which he had counted on and which had not failed him in former campaigns. But when the public frowned and stiffened its back against Lewis' pressure, the game was already up.

But let us not imagine, on that account, that the coal industry is popular. It is not; it is unpopular. The unanimity of opinion of the men on the street is striking in this respect. It was not that the public

loved the coal operators more; it was that it loved Lewis less.

One who is curious to learn just why the public has this uniform prejudice against the coal industry can ascertain, as a result of many desultory conversations, that it has its basis in the direct dealings of the average man or woman with the industry, and these, of course, are to a great extent, the individual purchases of fuel for domestic heating. The popular grievance with this particular part of the business is fairly uniform and turns upon two features in the preparation of coal for the market, and the marketing. It is universally stated that an unstandardized product with a widely varying proportion of incombustible material is forced upon them at uniform prices; and that such is the organization of producers and retailers that they have no chance to shop around and get a better grade or a lower price. There is no other commodity, the complaint runs, where a man cannot buy discriminatingly; where he cannot, as the phrase goes, "get a run for his money." Therefore the general conclusion that retailers and producers alike are "robbers." Statements showing the unfavorable returns of many coal companies and the fair profits of others have no effect on this frame of mind. The average individual does not grudge profits, small or large, as, for example, to the automobile manufacturers; but in buying an automobile, he insists he knows exactly what he is getting and has a competitive field from which to select.

The coal industry should consider how far the public's grievances are justified, and how to rectify them—how to please the public, in short. It would probably make more rather than less money by so doing. It also would build up public goodwill which would stand in good stead in future discussions as to government regulation or labor domination. And, in addition, a policy of openness and frankness on the part of the industry with the public would be disarming. The arguments as to the relative merits of open and secret diplomacy are extensive, but experience in the United States is that placing the cards face up on the table is the best way to play the game. What is only surmised invariably is suspected. The coal industry might well spend a little money on publicity and indulge in a little honest program of educating the public as to the inherent facts and problems.

The Only Way Out

THE ANNUAL REPORT of the Pittsburgh Coal Co. for 1924 so clearly foreshadowed the financial results of the past calendar year that the net operating loss of $1,266,940 in 1925 comes as neither a surprise nor a shock. The latest report, however, is more than a mere chronicle of past disaster. It is a heartening record of courage to face the future—not with blind resolution but with a well-considered plan to overcome some of the tremendous difficulties confronting the bituminous coal industry. The key to that plan is modernization.

Acting upon the report and recommendations of nationally known consulting engineers, the company last year dismantled thirteen of its older operations "found to be uneconomic, wasteful of labor and unprofitable in competition with modern plants." This scrapping of obsolete plants and equipment meant the writing off of $1,385,902 from its surplus account. The company also consolidated several existing plants and is considering further consolidations and the complete modernization of all its operations in the Pittsburgh district. "These projects," states the report, "will involve large capital expenditures which, however, in the judgment of your officers, will be justified by the increased efficiency and lower production costs so attainable."

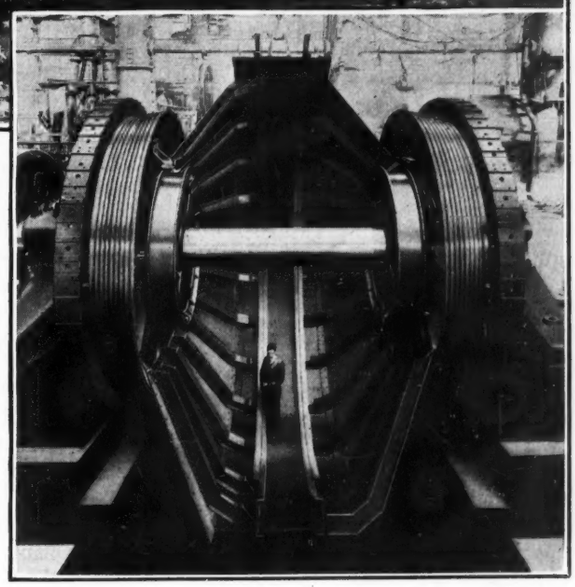
The Pittsburgh company is not the only operator that has adopted such a program. Neither is it the only producer that should invite the attention of engineering skill. There are probably hundreds of mines which stand in the need of drastic rehabilitation. Many, unfortunately, lack the courage to acknowledge their shortcomings. Many that are willing to confess their weaknesses have not the financial resources to effect modernization. If these latter cannot attract capital, they will drop out of the competitive race. The same fate awaits those that delude themselves with the idea that plants which were the last word in efficiency a few years ago can stand up against the newer, larger units. Modernization is a continuing process. Only the company that is ready at all times to scrap something good for something better can hope to survive.

Of course, no small measure of the troubles of the Pittsburgh company since 1923 has been due to rigid union wage rates. In recent months that company has launched upon an expensive experiment to free itself of that drawback. The importance of wage rates is not to be denied. Nevertheless, the labor question may profitably be subordinated when a modernization program is to be considered in its broadest aspects. It is a reasonable assumption that the uneconomic wage rates must inevitably find an economic level. When that condition is reached, the necessity for modernization will be still greater because business naturally will gravitate to the operators who can profitably produce the best prepared coal at the lowest cost. A common wage rate places a premium upon efficient operation and skillful management.

Despite the sad wailing of the professional mourners, the bituminous coal industry is not going to the dogs: it is the thousand-and-one brightly labeled political panaceas which have failed. Operators with courage are looking ahead, not back, and are working out their own economic salvation through modernization that starts underground and travels from the tipple to the sales department. They are breaking the path to a stabilization that will be effective because it is based upon sound operating policies and a sound merchandising program.

Profiteering in Brick

BRICKMAKERS declare that the high price of brick is due to the increased cost of coal. One cannot see any justification for such a claim. If by chance before the strike they burned anthracite they could easily have replaced that fuel by bituminous coal and kept their prices down. Now brick is coming to America from England, France, Belgium and Holland and there is a loud cry for a tariff, for which there is no real reason. If the prices are set right the American manufacturer has adequate protection, for brick is costly to load and unload, delaying shipping and absorbing precious wharf space.



Flywheel Equalizes Hoist's Demand for Steam

Small Turbine Operates Large Hoist Through Flywheel—Dynamic Braking Employed — Double-Cylindro-Conical Drum Reduces Excessive Load Peaks

By C. H. S. Tupholme
London, England

IN MOST coal regions the mine output must be hoisted to the surface either up a shaft or through a slope. The power demand of the hoist motor is not only intermittent but fluctuating. Heretofore it has not been deemed feasible to correct this inequality and make the demand for steam on the generator constant. This has been practically accomplished, however, at the Harworth Colliery in England, and although British hoisting practice varies radically from that normally followed on this side of the Atlantic, this installation will prove of interest to American coal men.

The Harworth Colliery, owned by Barber, Walker & Co., is located about 20 miles east of Sheffield. It is provided with two shafts, each 22 ft. 4 in. in diameter and about 2,940 ft. deep to the coal, being sunk to the Barnsley seam, which is the measure worked. These shafts, which were put down by the aid of the cementation process, are lined with concrete throughout the entire thickness of the water-bearing strata penetrated or to a depth of roughly 800 ft.

In selecting a suitable hoist equipment for these shafts, the following considerations were taken into account:

The upper illustration forming the headpiece of this article is a general view of the upper works of the Harworth Colliery. Two shafts have been sunk, and coal will be hoisted through both. Both tipples as well as the headframes serving them are built of reinforced concrete. On the right is a view of the interior of the drum during erection. The huge size of the drum (its outer diameter is 26 ft.) can be judged from the size of the man standing within it.

Total depth of hoist	3,000 ft.
Output per hour	300 tons
Net load per hoist	7½ tons
Weight of cage and chains	10 tons
Number of cars per cage	9
Weight of empty car	840 lb.
Diameter of hoisting rope	2½ in.
Type of rope	Locked coil
Decking period	10 sec.

When both shafts are in operation the colliery will be capable of producing about 4,000 tons per 7-hr. shift. The power necessary to carry the load other than that consumed in hoisting, such as pumps, haulages, compressors, ventilating fans, preparation screens and coal-washing equipment, totals approximately 1,500 kw.

Several schemes for obtaining the necessary power were investigated. These included steam hoists fitted with mixed-pressure turbines to carry the auxiliary load; a main power station where electrical energy for all purposes would have been produced by high-pressure turbo-generating units and the purchase of electric energy from a public utility. The Stubbs-Perry system was finally adopted.

By this system advantage can be taken in mine hoisting of the direct application of the high-speed condensing turbine, with its well-recognized economy, reliability and small size. Furthermore, this system entails a minimum of electrical equipment and assures precise and smooth operation. The consequent reduction in

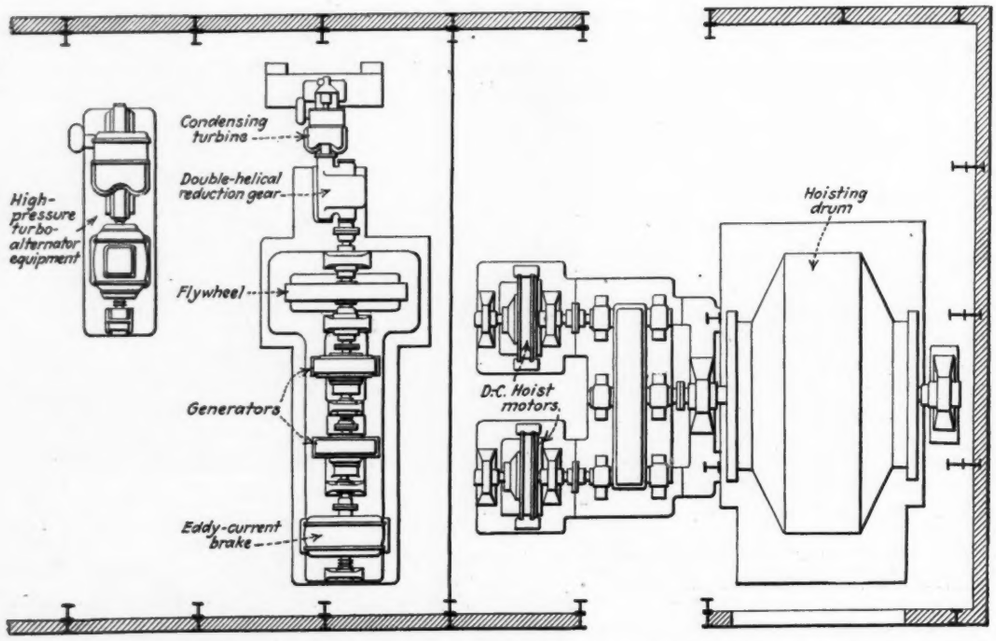


FIG. 1

Hoist Equipment

This shows the relative positions and sizes of the various pieces of apparatus. It makes a compact layout and one which could probably all be operated by one man or at the outside two. Labor charges for operation are thus reduced to a minimum.

boiler capacity, cooling towers and the possibility of using modern high-pressure boilers has enabled many improvements to be obtained, with a corresponding reduction in the initial expenditures.

Theoretically the system affords the following advantages: (1) Complete isolation of the hoist-equipment load from the remainder of the power demand. (2) Elimination of large fluctuations either in the form of electrical energy or of high steam demands.

With these broad advantages in mind, it is easy to perceive that the equipment may be arranged to suit the widely varying conditions found at collieries. Thus Fig. 1 shows an arrangement adapted to a large mine operating in a country district beyond the range of existing power lines. It should be noted that the eddy-current brake forms a means for absorbing all regenerative energy above that required to return the flywheel to its normal speed. In other words, the only energy absorbed by the eddy-current brake is regenerative energy returned to the flywheel set during a trip in which material is being lowered into the shaft. This brake is automatic in its operation and is controlled by the turbine governor. In effect, such as installation operates like a Ward-Leonard equipment, drawing its power from a large centralized supply.

Fig. 2 shows the hoisting equipment installed at Harworth, comprising a 14x26 ft. bi-cylindro-conical drum. Each of the hoist motors geared to the drum is of 1,200 hp. The arrangement is shown in Fig. 5. The two motors are connected through flexible couplings to pinions meshing with a common double helical gear secured to the drum shaft. Both motors, the gearing and two of the drum-shaft bearings are mounted on a massive cast-iron bedplate of box section and form a self-contained unit in themselves. At the other end of the drum shaft the bearing pedestal is cast integral with the bedplate. Both the pinion and drum-shaft bearings consist of four-part cast-iron shells lined with white metal and capable of adjustment by wedges.

To the right of the headpiece may be noted the

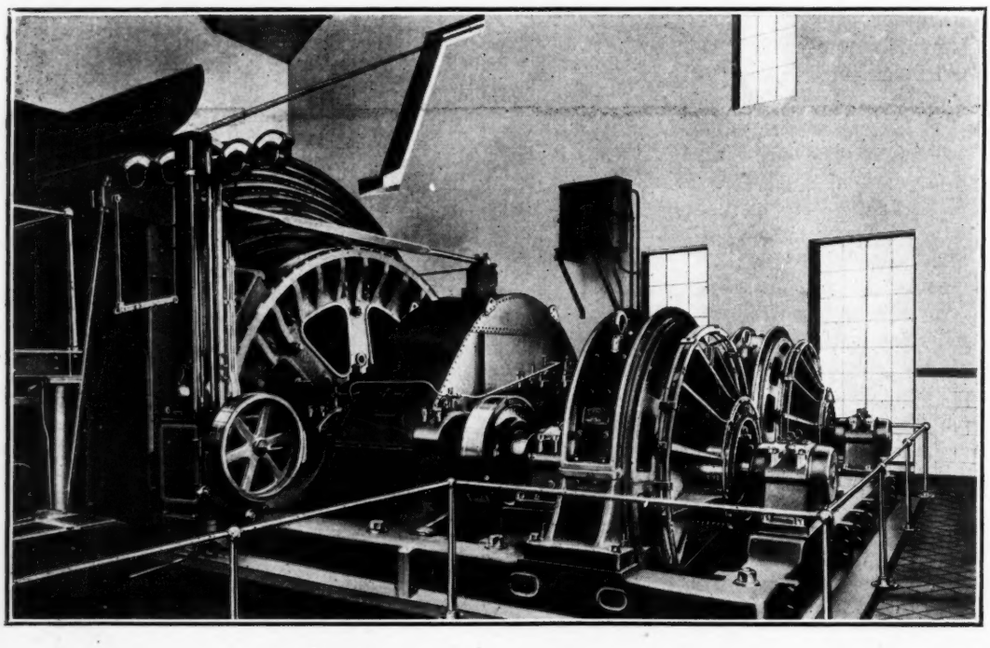


FIG. 2

The Hoist

A general view of the two motors geared to the hoist shaft. All the bearings on this side of the rope drum are attached to a common bedplate of heavy box section affording great rigidity of construction and assuring correct alignment of all shafts. The outboard bearing on the farther end of the drum is carried in a pedestal cast integral with its bedplate. The overwinding and overspeeding device practically forms a part of the depth indicator. It is so connected with the engine control as to assure safety.

internal construction of the drum itself. With the exception of the cheek pieces, which are of cast iron, this drum is built up of steel plates. The large cylindrical portion is 26 in. in diameter over the lagging and 6 ft. 2¾ in. wide. It is made of four pieces of 1-in. plate, stiffened internally by 15x4-in. channels placed back to back in pairs and fastened to the scroll plates by means of 6x6-in. angles. The scroll plates are ¾ in. thick and each is made up of eight sections. These are connected to each other, to the drum cheeks and the cylindrical part of the drum by 8x8-in. broad-flanged beams, two 8x6-in. beams being used as intermediate stiffeners on each section. The drum cheeks each have eight arms which are cast integral with the brakeways and the small-diameter cylindrical portion of the drum. They are cast in halves and held together by two 4-in. bolts and four shrunk keys recessed into the bosses, which are of 46-in. diameter and 28 in. wide.

TEN TURNS FOR ACCELERATION

Scroll iron is riveted to the scroll plates and carries the rope from the small to the large diameter of the drum in 10 turns. Of the eight convolutions of rope on the small cylindrical portion of the drum three are dead. Two cast-iron spare-rope reels, each having a capacity for 300 ft. of rope are mounted on the drum shaft. These reels, which are made in two parts, are clamped to the drum cheeks during winding operations, but may be rotated by hand-operated spur gearing when it is necessary to pay out or take up rope. The drum sides are securely stayed by large tie bolts and nuts. The large cylindrical portion of the drum or barrel is lagged with well-seasoned oak secured by bolts with countersunk heads.

Brakeways are placed on each side of the drum. These are 16 ft. in diameter and 12 in. wide and are ventilated on the underside. Twin brakes of the post type are employed. These consist of 24 in. x 7½-in. I-beams reinforced with flats. They are applied by means of a weight and released by an air-brake cylinder 14 in. in diameter with an 18-in. stroke.

The drum shaft is built in two parts with the spur wheel sandwiched between them. This shaft is of 26-in. maximum diameter and 32 ft. 10 in. long. The maximum diameter lies within the drum cheeks, the shaft being only 24 in. in diameter in the center of the drum. A 4-in. hole is bored through this shaft from end to end.

The double helical gearing by means of which the drum is driven is of particular interest. The pinions

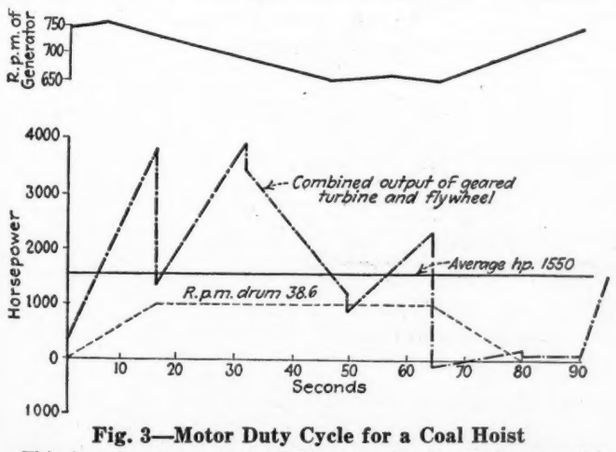


Fig. 3—Motor Duty Cycle for a Coal Hoist

This is a horsepower-second diagram showing that a complete hoist takes about 1½ min., and consumes a maximum of roughly 4,000 hp. Although three distinct peaks are apparent none is large.

are of oil-tempered nickel-steel forged integral with the shafts. These latter are mounted in journals of 9-in. diameter and 19 in. long. Each of the pinions carries 38 teeth of 1.15-in. circular pitch, meshing with the

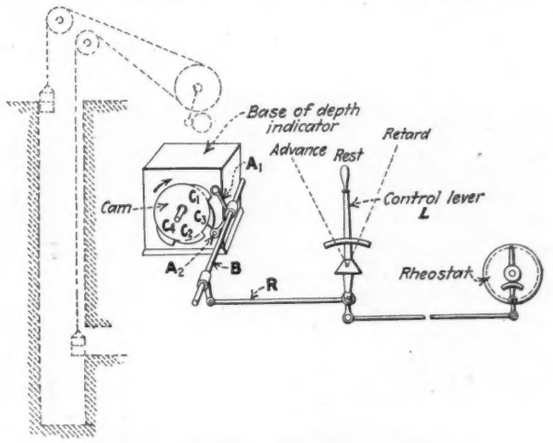


Fig. 4—Diagram of Safety Control

By a system of shafts, levers and links the overwinding and overspeeding device which is geared to the depth indicator is attached to the hoist-control lever in such a way that the machine would be stopped automatically should the hoistman mismanipulate his levers at the beginning or end of a hoist.

gear wheel which has 345 teeth. This wheel has a cast-iron center provided with a forged-steel rim, which is securely shrunk and pegged to it. In order to minimize shrinkage stresses, the spider rim is slit across in four places, make-up pieces being inserted in these openings. This wheel has a pitch diameter of 10 ft. 6½ in. and an over-all width of 39 in., the effective width of face being 36 in.

Fig. 3 shows the variation in horsepower throughout a complete coal hoist. It will be noted that the beneficial effect of using a double-cylindro-conical drum is pronounced, inasmuch as the diagram shows a moderate peak load instead of one with a high acceleration, as the load gets under way on the small diameter of the drum. A secondary peak appears as the rope mounts the cone, but this also is of moderate height, thus reducing the cost of hoist motors in proportion.

The maximum energy exerted by the motors during a normal coal hoist is slightly over 3,000 hp., but the motors are capable of exerting a momentary peak of approximately 6,000 hp. The electrical control of this hoist is normally effected by the driver by means of a single lever from the control platform. Under certain conditions, however, the machine is controlled automatically and quite independent of the hoist engineer. This is accomplished by means of a cam gear which operates in conjunction with the depth indicator.

DEPTH-INDICATOR DESIGN

The depth indicator is gear-driven from the drum shaft, and on its shaft is mounted a cam wheel as shown diagrammatically in Fig. 4. The arms *A1* and *A2* are both keyed to the shaft *B* and carry rollers which engage with the cams. The cams and arms are so arranged that the cams *C1* and *C2* engage with arm *A1* and cams *C3* and *C4* with arm *A2*. The control lever can thus be operated from the cam wheel through the rod *R*.

Suppose that the hoist is running at full speed with a cage approaching the dumping point, the control lever and controller being then in the forward position with the cam wheel revolving in the direction of the arrow. Should the hoistman neglect to reduce the speed at this

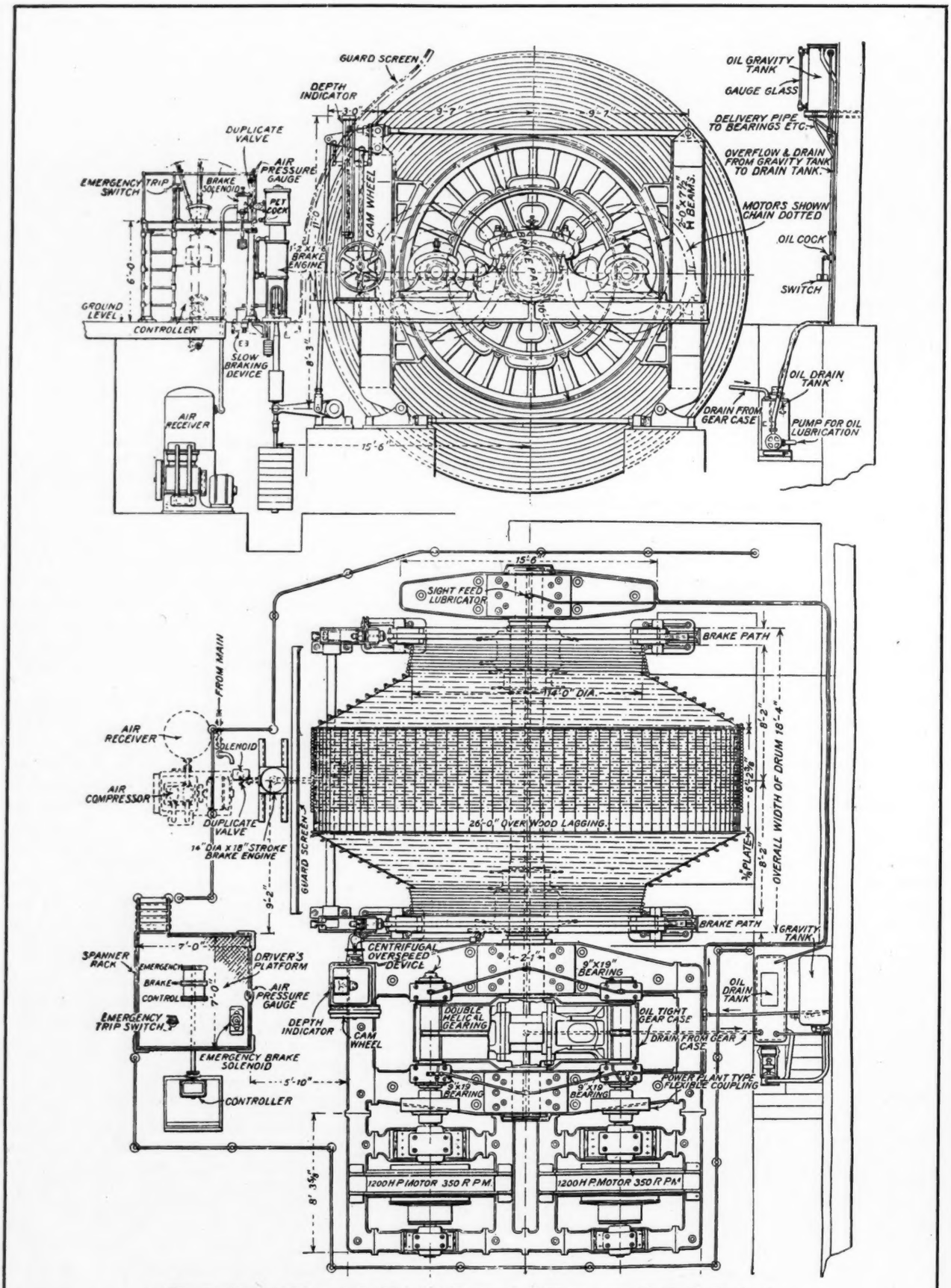


Fig. 5—General Plan of the Hoist at Harworth Colliery, near Sheffield, England

This shows the arrangement and some of the details of the various parts of this machine. Built-up drums of the diameter of this one are almost unknown in this country. But so at coal mines are 3,000-ft. hoists.

point by returning the control lever toward the off position, the cam *C1* will come into contact with the roller arm *A1* and the control lever will be returned automatically toward the off position, thus bringing the cages almost to rest. The hoist, however, is not quite stopped at the decking level, but will creep past that point at a slow speed.

It will be observed from Fig. 4 that when the controller is in the off position the rollers on arms *A1* and *A2* are clear of their respective cams. It is possible for a careless hoistman to start the machine from rest in the wrong direction, but no harm would result should the overwind switch be brought into operation and the emergency brake applied, as the hoist moves off in either direction at an extremely low speed. It will be observed from Fig. 4 that at the beginning of the hoist the operator must keep the roller pressed against the cam in order to obtain the correct rate of acceleration.

The duty of the mechanical brake, under normal conditions, is not to bring the hoist to rest but to hold it after it has been stopped by electrical braking. The wear on the brake blocks is thus reduced to a minimum. The safety device is added to provide a means for automatically stopping the machine in case of overwind, overload, failure of current, or overspeed of the flywheel set. It is so arranged that it may be tripped by the driver in case of emergency.

SAFETY DEVICES ALWAYS READY

This safety device comprises a field-discharge contactor and discharge resistance, as well as an emergency brake and solenoid contactor. It is designed to operate under the following conditions: (1) By hand (in case of emergency), by means of a push button or hand lever; (2) in case of overwind by means of the overwind limit switch; (3) on overload by means of a relay operating in the main Ward-Leonard circuit; (4) by overspeed of either the hoist motor or the generator set; and (5) on failure of the power supply. Should any of the above conditions arise, the safety device causes the emergency brakes to operate, at the same time taking the load off the hoist motor by open-circuiting the exciter field.

The eddy-current brake shown on the left in Fig. 6 absorbs regenerative energy when materials or men are being lowered. It is arranged to operate at a function of the turbine speed. Thus, assuming that the turbine flywheel equipment is running at its light-load speed and that a load is being lowered into the shaft, the regenerative energy returned to the flywheel equipment will have the effect of increasing its speed. Immediately this takes place the mechanical arrangement connected with the turbine governor operates a contactor system which energizes the field of the eddy-current brake, thus holding the speed of the turbine flywheel equipment within safe limits.

In capacity this brake is such that the maximum load possible may be lowered with safety and may be held electrically in any position. In installations where auxiliary electrical power is available an induction motor may be installed in place of the eddy-current brake. Such a motor operates in exactly the same way as the brake described, but in addition may on occasion be used as an induction motor, the turbine being unclutched meanwhile. This feature greatly increases the flexibility of the installation. It provides an alternate means of operating the hoist engine, thus enabling the turbine and steam plant to be shut down for extended periods. It also offers certain economies during off shifts when the equipment may be operated electrically.

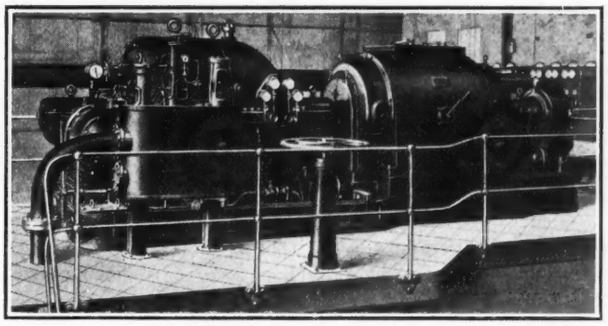


Fig. 7—Turbo-Generator Carrying Colliery Load

This alternating-current generator shoulders all of the colliery load except that of hoisting. This machine has a capacity of 1,500 kw. and is installed in the same room with the direct-current flywheel unit shown in Fig. 6.

At Harworth power for the hoist engine is supplied by means of the turbo-flywheel equipment shown in Fig. 6. This consists of two 875-kw. direct-current generators, a solid cast-steel flywheel weighing 22 tons, the eddy-current brake and a 1,550-hp. high-pressure steam turbine, designed to operate on 170 lb. of gage pressure and 200 deg. of superheat and to exhaust into a 27.68-in. vacuum. This machine operates at a speed of 4,500 r.p.m. and with its condenser occupies an extremely small space considering its capacity. The direct-current generators and flywheel operate at 750 r.p.m. and naturally are driven through reduction gear-

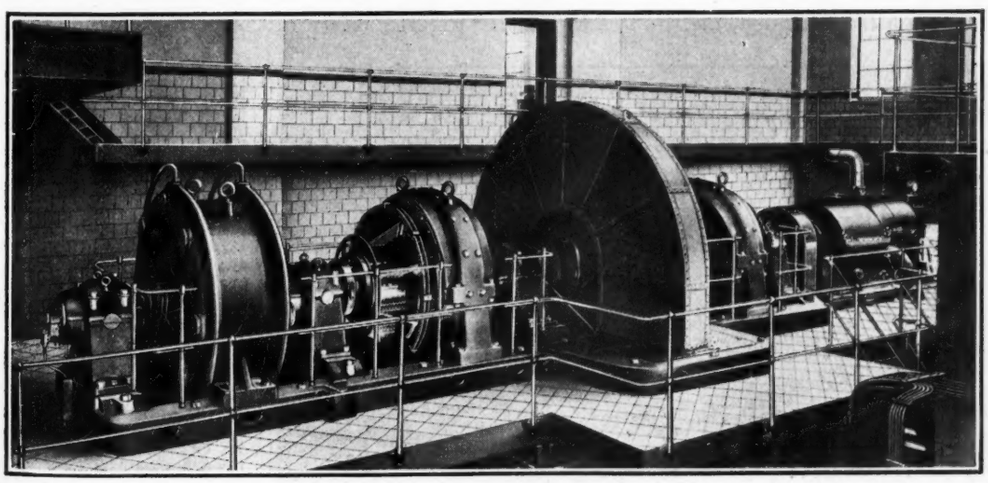


FIG. 6

Flywheel Turbo Set

Flywheel motor-generator sets furnishing power to hoist engines are fairly common but here is a turbo-generator set fitted with a flywheel. By this means the steam demand of the turbine is nearly equalized and rendered almost constant. The turbine is connected to the generator shaft through a reduction gear.

ing, the ratio being 6 to 1. The arrangement is such that during peak loads the turbine decreases its speed, thus allowing the flywheel to give up its stored energy and equalize the demand for steam imposed on the boilers.

At this mine the auxiliary load is carried by a 1,500-kw. 3,000-r.p.m. high-pressure turbo-alternator erected in the new power station shown in the background of the general view of the colliery. This alternator also is shown in Fig. 7.

At the present time the upcast shaft only is in operation so that the power-house building is only half completed. The other half of the hoisting equipment or that for the downcast shaft is being put together at the factory.

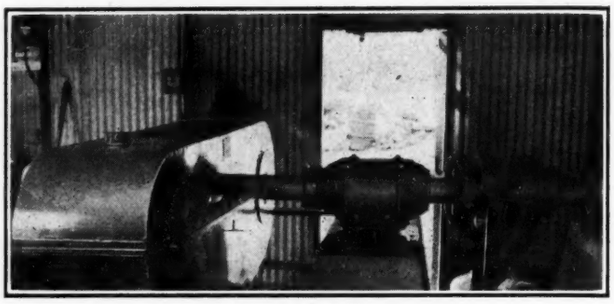
As the output of this colliery increases automatic decking arrangements will be installed, and the coal will pass along covered galleries to the screening plant. This is designed to handle 4,000 tons of coal in 6 hr. 40 min.

Barber, Walker & Co., owner of this colliery, is building a modern village for its employees. This will eventually consist of 1,000 to 1,200 houses, together with the necessary shopping and recreational facilities. At present about 600 of these dwellings are completed and occupied. The village has been laid out on generous lines, the houses being supplied with water and electric light and placed in such a manner that the surrounding grounds may be utilized for gardens and lawns.

I am indebted to the Metropolitan-Vickers Electrical Co., Ltd., for the data upon which this article is founded and the photographs accompanying it. This firm designed and installed the system here described.

Mulga Mine Has Three Fans Using Common Intake

Mine ventilation, as one of the factors pertaining to safety, receives its full share of attention at the Mulga mine of the Woodward Iron Co., at Mulga, Ala. To the ventilating equipment, which until recently consisted of two fans pulling over 175,000 cu.ft. of air through the mine, there has been added a new fan, with a rating of 160,000 cu.ft. per minute at 5-in. water gage. All three fans are operated on a common intake. An auxiliary drive forms a part of the equipment at each fan. The two old fans which are located close to the tipple and power plant can be operated either by steam engine or motor. Electric power for the latter is available from two sources: the local plant and a transmission line.



A Restricted View in the Motor House

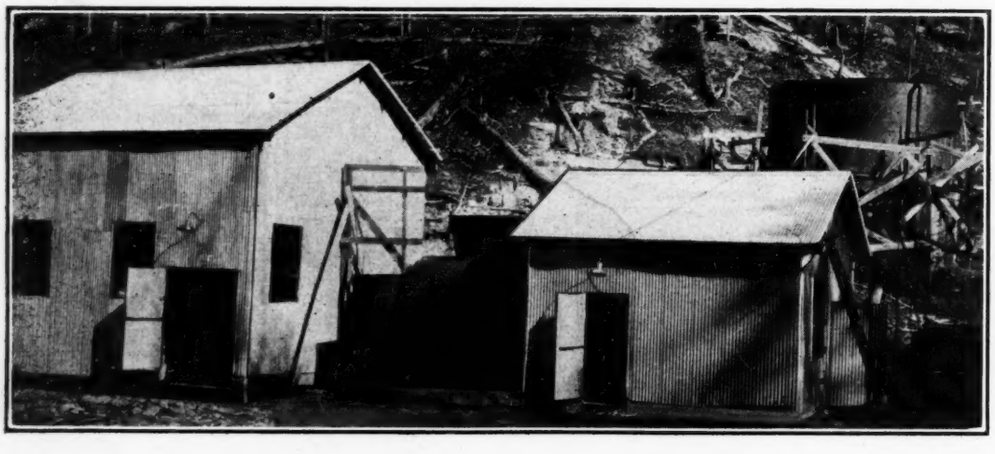
The short "belt center" possible with silent-chain drive cuts down the size of building required. The inclosing casing of this chain can be seen at the left. At the right is the square-jaw clutch on the fan shaft.

The new fan, an 8x3-ft. multivane unit rated at 275 r.p.m., was installed at a recently-completed escapeway located in a secluded hollow a long distance from the tipple. The regular drive of this fan is a 200-hp., 435-r.p.m. motor of the wound-rotor type. A silent chain connects this motor to a short drive shaft, which in turn is connected to the fan by means of a square-jaw clutch.

The auxiliary drive is a four-cylinder fuel-oil engine having a rating of 200 hp. at 285 r.p.m. It was purchased second-hand and is not one of the latest type. Starting is by means of compressed air furnished by a small gasoline unit. The large engine is direct-connected to the fan through a square-jaw coupling of the same type as is used on the motor side. A tank of approximately 10,000 gal. capacity, erected close to the fan stores a supply of cooling water.

Because of the remote location, an attendant is at the fan at all hours. At regular intervals he starts the engine in order to assure its being constantly in working order. With such precautions as taken with the fan equipments at the Mulga mine, any interruption to ventilation because of fan trouble is unlikely.

APPROXIMATELY 140,000 workers in the mineral industries have now been trained in mine rescue and first aid methods by employees of the Bureau of Mines, according to the 1925 report of the director. The chief purpose of the Bureau's recently organized safety extension service will be to give advanced training in rescue work and bring to the attention of mine officials the latest advances made in the prevention of mine fires and explosions and in the conduct of rescue operations and disasters. The Bureau has also recently begun a campaign for greater safety in the petroleum industry.



Construction View of Fan at Mulga

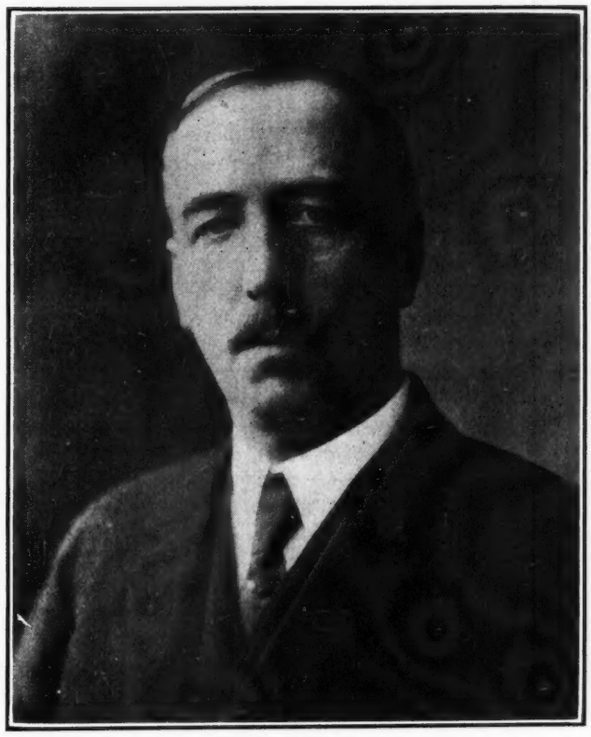
The regular drive is a 200-hp. motor installed in the small building at the right. The auxiliary drive, a fuel-oil engine of the same power, is in the large building at the left. Cooling water for the engine is stored in the tank back of the motor house. The fan is a multivane unit 8 x 3 ft., having a rated capacity of 160,000 cu.ft. per minute at a 5-in. water gage.

Coal Men You Should Know

Robert Grant

By J. S. Burrows

THE RECENT merging of some of the larger smokeless mines under the ownership of the Massachusetts Gas Companies has brought to the front rank of the smokeless industry, Robert Grant, as president of the several companies now controlled by this Boston corporation. Mr. Grant is a man whose talent for efficiency in organization and management has carried him from the lower clerical positions of a large city gas office to the active direction and management of important public-utility companies and other corporations, embracing high- and low-volatile coal producing properties, gas plants, byproduct coke ovens, iron furnaces, steamships, towboats, and barges, which it may be added includes nearly all the important coal-consuming industries. Mr. Grant is now president of the E. E. White Coal Co., the East Gulf Coal Co., the Pemberton Fuel Co., the Prince Wick Coal Co., the Long Branch Coal Co. and the Glencoe Coal Co. of West Virginia. He is also president of Castner, Curran & Bullitt, Inc., of New York—a well-known selling organization with branches in Boston, Chicago, Cincinnati, and other cities.



Robert Grant

Mr. Grant was born and educated in Glasgow, Scotland. He came to the United States when a young man and entered the employ of the New England Gas & Coke Co. Shortly after joining this organization, and while he was employed as a junior accountant, the company was placed under a receivership and the auditor of the company resigned. Mr. Grant was placed in charge of the accounting department at this most important time and when a reorganization came about and his company was taken over by the Massachusetts Gas Companies, Mr. Grant was placed in charge of the accounting department of the greater Massachusetts Gas Companies. In the years that followed his special organizing ability brought additional responsibilities and recognition. Mr. Grant was made an executive of the parent company early in its career and has been closely identified with its expansion program from the beginning. He has supervised the formation of all the subsidiary companies acquired in recent years. In 1915 he became president of the "Commercial Companies" of the Massachusetts Gas Companies such as the New England Coal & Coke Co., New England Fuel & Transportation Co., Mystic Steamship Co., etc., and was elected vice-president of the parent company in 1918. Mr. Grant is an indefatigable worker, a fine example of the sturdy stock from which he comes and a great lover of his native game, golf. He has always found time to keep in close touch with his subordinates and the thousands of employees of the companies he directs. He is not only personally acquainted with most of these people, but is deeply interested in their individual welfare. As the directing head also of the Federal Mines near Fairmont, W. Va., Mr. Grant has had practical operating experience in coal mining and is well-known in that part of the state as a successful operator. His entry as an operator into the southern West Virginia field foreshadows a successful, efficient mining organization of which its members may be proud. Such organizations have been the life-work of Robert Grant.

The steady growth of the smokeless coal industry of West Virginia—so often attributed solely to the high quality of its product or to the fact that the mines are non-union—could not have been brought about without an aggressive marketing policy, which from necessity has been developed within the industry itself.

These fields, lying in the southern counties of West Virginia, were actually hewn out of the wilderness by the pioneering type of operator as far back as the early eighties and lacking a contemporaneous growth of coal consuming industries nearby—as for example, the Pittsburgh region—they have remained in an isolated position hundreds of miles from any markets.

As the smokeless industry is vitally dependent upon long-haul transportation by rail and water and as it must derive its sustenance from many kinds of consumers in distant markets both at home and abroad, it is plainly a business which can succeed best when conducted on a large scale, which under modern conditions means corporate ownership of properties under experienced men like Robert Grant.

By Mechanical Loading an Attack Is Made on the Largest Cost Items of Coal Mining

Miner Should Favor Mechanization as It Makes for Better and Easier and More Social Working Conditions—Doubles Tonnage per Man and Reduces Room "Rent"

By Nixon W. Elmer
Consulting Engineer, Quincy, Mass.

Nixon W. Elmer

IN EVERY industry there is a natural tendency to do things as every one else in the same industry is doing them, each individual concentrating his efforts on doing them a little better than the other fellow. No general change of methods takes place in any industry in a brief space of time, except under the spur of necessity, usually furnished by bitter competition.

I think that you will agree with me that such necessitous conditions exist in the bituminous coal-mining industry today. Reacting to this universal stimulant, necessity, the coal-mining industry has studied its standardized practice and customary sequence of operations with an open mind and a searching eye.

After repeated study of operations and cost data, man after man in widely separated districts has apparently come to the same conclusion, namely that the opportunity for a major saving lies in one place only. This is at the face and as far back as the haulage entry.

Here is located the greater part of the labor item in mine coal cost. Much of this is hand labor, in fact it is safe to say that more than 95 per cent of all the coal used by the industries today, has been manhandled about as follows: Dug out of the side of a pile in semi-darkness with a shovel, carried an average of one step on the shovel, lifted higher than the miner's shoulders and placed in a car, not in place to receive it more than 75 per cent of the time.

Of course the miner does not need to shovel coal for 8 hr., but the 2 hr. he loses are generally speaking, during the time when he must shovel coal because the face is not ready to work on till the free coal is cleaned up. This means that he either wastes this time or uses it uneconomically in moving the more distant coal closer to the place where the car will be, thus handling this part of the coal twice.

A commonly expressed, though perhaps not a very thoughtful viewpoint, has been that the miners generally work on a tonnage basis and will demand and receive double wages, at the expense of the operator, if their output is doubled by mechanical means, the corollary of this thought being that in this event the individual miner will work but half the time that he would if he did not receive this assistance. The point missed is that, with group machinery, there is no longer any possibility of individual tonnage payment, the very machinery itself will force tonnage work to be of the group type, and with group work provision for an average number of absentees can always be made and their places can be filled without loss of production.

Furthermore, in setting such new group-tonnage rates it is not probable that these new rates will be such that the miner who had formerly made $10 per day, for example, would be raised to $20 per day for the same time and easier work. As a matter of fact most of such work now going on is being done on a day-rate basis, and the men like the idea and take to it, both because the work itself is easier and because of the element of social intercourse thus introduced into lives that are notably barren in this respect. The logical development would seem to be in the direction of day labor with a group bonus for group-tonnage production. The factor just mentioned, namely the social element introduced into the miners' lives in this way, is an intangible, and so seems an airy nothing to the man in a busy office seeking privacy, but to the miner underground it seems to be of real importance. When we stop to think, this in understandable. Men always prefer to do manual labor in gangs rather than individually or in pairs. Those of us who have passed through a stage of being paid for muscle alone should be able to remember this.

Many an otherwise thoroughly competent engineer or executive has failed to make a success of a carefully planned and mechanically correct project, through

MR. ELMER declares that with mechanization, individual tonnage payment becomes impossible, making group payment or the day wage essential. He declares that to mechanize is to Americanize. He avers that when mechanization is complete men will load at least twice as much coal. He urges that one improvement only should be made at a time and that conveying should precede machine shoveling, making enough profit to pay for complete mechanization.

Article entitled "The Mechanization of Our Coal Mines, from the Viewpoint of the Material-Handling Engineer," read March 11 in New York City before the Material-Handling Section of the American Society of Mechanical Engineers acting with the National Coal Association.

neglect of such human preferences—the likes and dislikes of the man behind the shovel.

Though I, for one, cannot claim to have foreseen this result, and more time will have to pass before it can be said to be proved generally, still it is interesting to note that, even with no increase of wages, these better, easier and more social conditions are attracting a higher and more intelligent grade of labor underground. This is certainly important and will mean much to the industry, if general experience parallels individual experience in this respect. Broadly speaking, does not the history of other industries teach us that to mechanize is to Americanize?

To get back to the general subject of mechanizing the hand-labor operations from the face; let us ask ourselves two questions: (1) What is the order of magnitude of the possible savings at this point? (2) What means are in sight that appear as possible or probable means for achieving such savings?

Taking up the first question: "What is the order of magnitude of the possible savings over present hand-labor methods from the face out to the haulage entry?" Please note that this question deals solely with the possible saving in hand labor, without defining the particular mechanical method to be used.

No One Best Method of Loading

Though larger figures have been given on good authority, the figures I am going to give are based on personal experience. I do not believe, however, that the use of this or that particular method or means should affect these results materially, provided the method selected fits the conditions in the particular mine. This is a new thought to many and deserves to be emphasized. There is not and never has been one best method of handling bulk materials mechanically. Success follows a wise selection of mechanical means, where the machine and the method are respectively so modified and co-ordinated that they work together to the best advantage under the special conditions in the particular mine.

Where a certain group of workmen average 10 tons per 8 hr., laying their own track at the face and their own drilling and shooting, under a suitable and carefully planned mechanizing system, these same men can and do handle from 20 to 30 tons per 8-hr. shift, depending upon how much shooting, drilling and moving of equipment they are required to do.

The actual tons quoted are not significant, it is the proportional increase obtained that has a real meaning for us. The means used for mechanical handling to which these figures apply were mostly chain conveyors. I have seen, and others here can relate, similar results with belt and apron conveyors. In such cases, shovels, man-handled, are used as of old; merely the conditions under which the shovelers work, are changed.

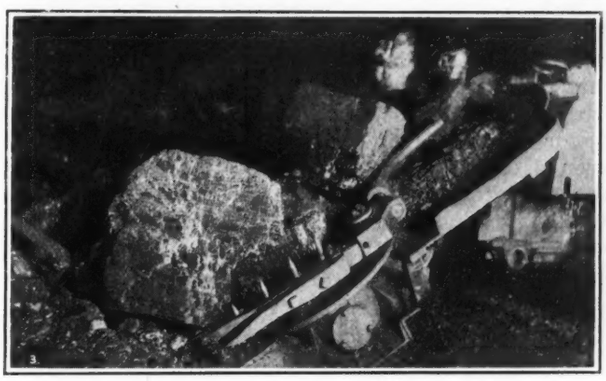
Under other mining conditions, cable drags have successfully replaced the shovelers entirely with equal or better results, and where lumps are not large belts will undoubtedly find their place in the future. Circumstances frequently call for a combination of two or more of these methods, but the results to date fall within the limits mentioned of two to three times the normal room-and-pillar output for the same individual.

The mining methods used in these various applications run the whole gamut from straight room-and-pillar, through modified room-and-pillar, modified longwall to longwall. It does not require a prophet to see that some of these applications, useful as they are in themselves, are merely half-way stations furnishing the necessary background for a still more substantial success with loading machines.

It has seemed to me sometimes that the cart frequently preceeded the horse in much of our experimenting with loading machines. A suction dredge without a discharge pipe would be analogous to a loading machine without anything in which to load. Like most machinery, loading machines can earn no dividends when they are idle.

We are now ready to attempt the answer to our first question: "What is the order of magnitude of the possible savings through mechanizing the operations from the face to the haulage entry?" On the face of the results quoted, this would appear to be not less than 50 per cent of the direct labor.

Please note that we are speaking of the possible saving. The actual saving to date has usually been less than 50 per cent of the direct labor, particularly at the start. This is not surprising, because the mechanical details of the various types of equipment have not had time to go through the normal cycle of improvement and the operating forces have not had time to develop the technique of operation.



Lifting Large Lumps to Level of a Mine Car

Looking at these heavy masses of coal being carried to a mine car by a mechanical loader will convince anyone that the miner's opposition to the machine where it exists will be of short duration and be followed by a demand for its universal adoption.

Under almost every conceivable mechanizing scheme, the unit becomes a group instead of one or at most two individuals. This means that one consequence of the complete mechanizing of any mine must be to reduce greatly the area developed for a given production. Concentration of working areas of the order of magnitude of 10 to 1 are to be expected.

On paper your mine foreman can show from this a saving of general underground overhead labor of from 20 to 25 per cent, but this saving will not appear on the cost sheets till the whole mine is mechanized, the idle parts closed, and the unnecessary portion of the overhead labor pried lose from its hereditary jobs and absorbed in the productive labor. This takes time.

It took the Government five years to reduce their departmental organizations in Washington, after the war! When this reduction has become accomplished, this item of savings in overhead labor should fully balance the extra men used to handle and operate the machinery employed in the mechanizing. Then the possible saving will become the actual saving. At first we will have to be satisfied with about half the possible.

We now come to our second question: "What means are in sight that appear as possible or probable means for achieving such savings?"

In some of the early efforts, the assumption was made that the mining system would have to be altered radically to fit the mechanizing means. In the light of present experience this seems to have been unnecessary, because the available means for mechanizing are so numerous and various that suitable means can be and have been adapted to almost every type and method of mining.

On the other hand, it is often more economical in the individual case to change the mining system, where this is allowable. There are two main reasons for not changing a mining system, where money will be definitely saved by doing so: One is the safety of the workmen and property, and the other is mental inflexibility on the part of the management; of course either may function separately or both together. Where the mining system cannot be changed, it is reasonably certain that some form of mechanizing can be adapted and modified to fit existing conditions.

It is well to bear in mind that equipment already developed above ground should form the basis for the development of similar underground equipment; but that the mere transplanting of such equipment bodily, without suitable modification, will always prove unsatisfactory. In making such modifications to fit underground conditions, full advantage should be taken of the years of experience gained above ground with similar coal-handling equipment. This is where the material-handling section of the American Society of Mechanical Engineers may individually or collectively be made of use to the mining fraternity.

TOO LITTLE USE MADE OF EXPERIENCE

The two or three statements about the use of above-ground experience below ground, sound so self-evident that they hardly seem worth saying, but they certainly need to be taken to heart because the facts are that our general practice seems to have been almost the exact opposite. That is to say, we have not generally made use of above-ground coal-handling experience underground, and we have attempted to transplant bodily equipment developed above ground to the work in our mines. In these two mistakes may be found the reason for many of our failures.

What means are in sight which are capable of achieving important savings near the face? As this is to be a verbal, not a visual, table, I will simplify it by restricting myself to conveying methods, and assume, for the reasons already stated, that the loading machine should follow rather than precede the conveyors. The more promising of the efforts with which I am acquainted, may be grouped as follows:

- Longwall
  - Cable scraper or hoe
  - Chain conveyors
  - Apron conveyors
  - Combined mining and conveying
  - Jigging conveyors
- Modified Longwall
  - Saw-tooth or Y
    - Apron conveyor
    - Chain conveyor
    - Cable scraper or hoe
    - One or more of these combined with belts
    - Jigging conveyors
  - V-Type
    - Apron conveyors
- Room-and-Pillar (Modified)
  - Cable scraper or hoe
  - Chain conveyors
  - A combination of either or both of these with belts
  - Belt conveyors alone.

Each of these conveyor types has its strong and weak points. Salesmen will present the former, but unless we familiarize ourselves with the inherent weaknesses of each type we cannot hope to select and adapt wisely, except by some more or less fortunate accident.

The logical line of development of the heavier type of apron conveyor will be to improve it so that it can come closer and closer to the face to be shot. This will leave little opportunity for the use of loading machines. On the other hand, the next and obvious step with most of the other types of conveyor (except the cable scraper) is to adapt a suitable loading device to caterpillar traction and develop a successful continuous feed therefrom to the conveyor and thus eliminate most of the hand-shovel labor, already materially reduced by the conveyor.

MAKE ONE CHANGE AT A TIME

This, you will notice, assumes that the loader is introduced into the scheme after the conveyor application has been fully developed, has paid its way and reached a state of reasonable working perfection. It does not pay to attempt to introduce two separate but interdependent improvements at once. The reason that the conveyor should precede the loading device is that the conveyor installation will pay its way as it goes, and nothing will have to be undone when the loaders are later introduced. Also the cleaning problem is postponed.

Below ground as above, there is no one best type of conveyor; some types have received more attention than others and their underground development has proceeded farther, but each has its own strong points and weaknesses which must eventually determine its individual field of usefulness. It is inevitable that in many cases the best results will only be obtained by a judicious combination of types, each with its own proper function to perform.

The idea of cutting, mining and conveying at one and the same time and with one and the same machine is interesting many and should lead to important results. The cable drag or hoe is being tried out in many places, but under an unnecessary handicap. The device looks ridiculously simple, and, therefore, many operators are making the same mistake their brethren above ground made ten or fifteen years ago. They are using home-made outfits, and a good device will get a bad name in this way.

Any mechanizing system will be at a premium which favors the pillar-drawing part of room-and-pillar work, because of the large area of standing pillars throughout the country. In room-and-pillar work, retreat lags behind advance so that rooms frequently stand for years.

MAKE THE ROOMS PAY "RENT"

The rooms of a house or office either cost or earn money, which is called "rent." I have found it useful to charge standing rooms with a yearly rent, so-called. This underground room "rent" is obtained by dividing the cost of retimbering, relaying track and clearing up falls at the end of the period, by the number of years the room will have to stand before the pillars are drawn. The effect of this in interesting the local authorities to reduce this time element is astonishing. Such "rent" may amount to as much as a dollar a day per room, though this would be exceptional. Such information may be unpleasant, but it certainly helps to have the facts known and kept before the superintendent and foreman.

It is not unusual to hear not too thoughtful criticism expressed of the conservatism and resistance to change met with around coal mines. We should understand

and appreciate that such an attitude is not only natural, but inevitable, and, in many ways, desirable. Life itself below ground depends upon the correct interpretation of the signs and sounds, and the man who has learned the meanings of these warnings under a given system will naturally and rightly resist any changes which may lessen the value of his hard-won experience.

In conclusion, let me say that the interest in all this to the community at large lies in the stabilizing effect which a general success in mechanizing the mines will have upon the coal-producing industry. The beneficial effect on the industry from reduced costs, both direct and indirect, is obvious, but perhaps it would mean still more if the number of companies operating were materially reduced. It is logical to anticipate that machine loading will reduce the number of companies operating, for several reasons: (1) Many "snow-birds" will drop out, because of the decreased margin available under which they can work. (2) Competition will gradually eliminate those mines which are unable to make improvements in their methods for any reason, physical, mental, or financial.

From the point of view of the bituminous-coal industry, such stabilizing of conditions would be of incalculable value. The interest of the general public therein has been well put by the Engineering Council: "In the last analysis it is the consumer who will profit most by any improvement in coal procurement."

Believe Cutting Machine Caused Blast at Eccles Mine

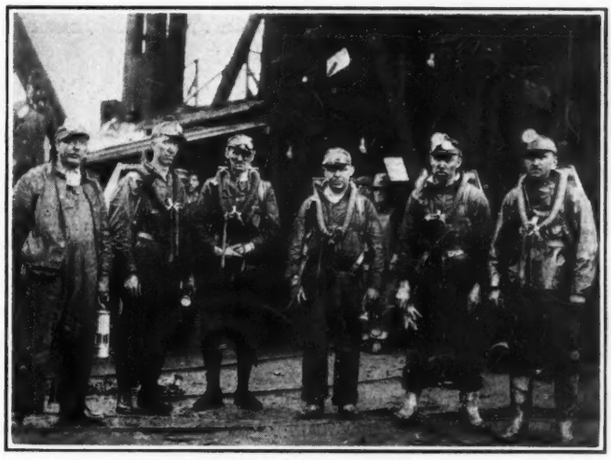
Barricade in Long Room Saved Ten Lives—Three Men Leave to Meet Death—One Man Killed in Upper Seam

IGNITION OF GAS by a cutting machine is thought to have been the cause of the explosion on March 8 of the No. 5 shaft mine of the Crab Orchard Improvement Co., Eccles, Raleigh County, W. Va., in which nineteen men were killed. Thirteen men who were at work in the southwest-entry section barricaded themselves in a room. Twenty-five hours after the explosion, ten of these men were rescued. Three of them met death in an attempt to leave the mine before the arrival of the rescuers. An explosion in the mine on April 28, 1924, killed 180 men.

The mine is in the Beckley seam and is served by a hoisting shaft which is 535 ft. deep. It connects with the No. 3 mine at the same horizon, about 270 ft. below the No. 6 mine of the company, which is working the Sewell seam. The coal from all three mines is hoisted in the one shaft mentioned. At the time of the explosion thirty-six men were at the upper level, that, namely, in No. 6 mine. All but one of these men reached the surface safely.

The explosion occurred at 6:50 p.m. An hour and a half after the explosion, No. 2 truck from the state rescue station at Mount Hope arrived on the scene with Inspector Robert Lilly who took charge until the arrival of Chief Inspector Lambie two hours later. These men were assisted in the rescue work by volunteers, including a team from the New River Co. at Scarbro, another from the McKell Coal & Coke Co. and a third from the E. E. White Coal Co. at Glen White.

Recovery was attempted, shortly after the explosion, through the upper level or No. 6 mine. In this operation thirty-five men were led to the surface through an auxiliary shaft. The explosion doors on the fan over the air compartment of the main hoisting shaft were blown off by the explosion and the air escaping through this vent was so charged with foul air that the men working at this replacement were required to wear gas masks. As the main force of the explosion was expended through this shaft, the curtain wall, buntons and guides were materially damaged. For this reason some time was lost in patching the shaft before a clear passage to the bottom was effected.



Rescue Team, White Oak Coal Co., Arrives First

This team started work at 10 p.m. cleaning and repairing shaft. At 6 a.m. of Tuesday morning the team entered the mine and advanced, in one shift, ¾ mile, building stoppings as it went.

DEBRIS HINDERED OPERATIONS

About 40 ft. from the bottom landing much debris was encountered, which, it was estimated, would have required about 48 hr. for its removal. The decision was reached, therefore, to stop the fan of No. 5 mine and to reverse the fan of No. 3 mine, on the same level, in the hope that the afterdamp would be pulled away from the southwest entries. The rescuers suspected that the men who were at work in this territory might still be alive.

At 7.30 p.m. of the following day the rescuers found a board in the southwest section, on which was chalked the information "Come to Second Right." Following this advice, they found a brattice barrier at a point 600 ft. inby, behind which were found ten survivors.

His Energetic Action Saved the Barricaded Men

Robert Lilly, district mine inspector, veteran fire fighter who had entire charge of recovery work till the arrival of Chief Lambie, and later subject to Mr. Lambie's direction. The car in the rear is one of the new West Virginia rescue trucks, two of which were rushed to Eccles following the explosion.

Those Who Directed the Rescue Operations

From left to right, Robert Lilly; Ralph Taggart, vice president Crab Orchard Improvement Co.; R. M. Lambie, chief, West Virginia Department of Mines, and Stockton Garvis, West Virginia state rescue man. Lambie was overcome by carbon monoxide but Taggart and Garvis administered oxygen from their own tanks and brought him out saving his life.

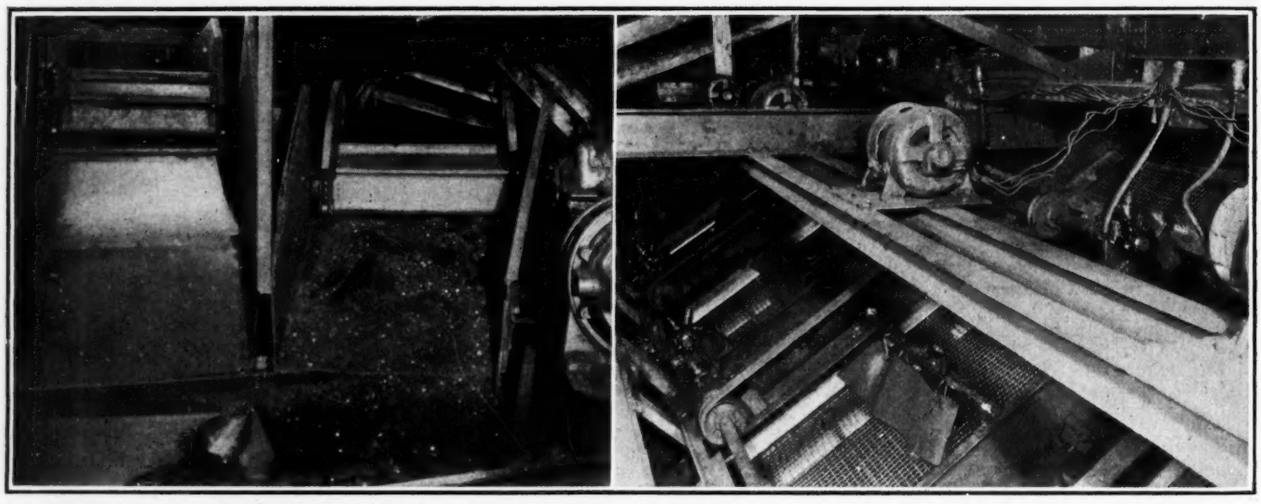
These men and three others, who subsequently died in an attempt to leave the mine, had erected a barricade of canvas and boards sealed with clay and refuse, at the mouth of a room, 1,000 ft. outby of the face. The room was 190 ft. long and had a volume of 11,000 cu.ft. In the barricade was built a small door and it was through this door that the three victims of afterdamp left the inclosure.

The survivors say that they had begun to grow impatient toward the end of their siege and were on the verge of attempting an exit when they were rescued. Throughout their work prior to reaching the barricaded men, the rescuers were as fearful that they would arrive too late as were the entombed men themselves. It was argued that, though the barricaded miners might escape the afterdamp, they might succumb to a shortage of oxygen caused by the liberation of methane and by the absorption of oxygen by the freshly-cut coal. The rescuers believed that the men had probably walled in a small area inby the last crosscut of an advancing entry. "The survivors," Chief Lambie said afterwards, "chose the location of their barricade with much wisdom," at a point that is far enough removed from the advancing entry faces.

Out of the explosion comes a new sense of the importance of selecting the proper place for erecting a barricade and of choosing the materials for its construction. In the light of experience at this mine disaster and at a recent explosion in the No. 8 mine of the Jamison Coal & Coke Co., Chief Lambie will outline the proper procedure in erecting barricades in a paper to be presented to the safety clubs of West Virginia, of which 250 are already organized.

In this explosion as in that at No. 8 mine of the Jamison Coal & Coke Co., was demonstrated the wisdom of an act of the last state legislature by which rescue trucks were provided for the use of the department of mines. In each case one of these trucks brought equipment and men to the scene soon after the explosion occurred. Governor Howard M. Gore, who is deeply interested in safety in mining in his state, played no small part in bringing about this arrangement and in co-ordinating the activites of the varous departments so that immediate aid is rendered at the scene of a mine disaster. The coroner's inquest will be held in Beckley on April 7.

ONE OF THE OLDEST electrified coal mines in existence recently closed down after 30 years of continuous operation. This was No. 22 Eureka colliery of the Berwind-White Coal Mining Co. in the Clearfield district of Pennsylvania. This mine was opened in 1894 and was the first plant installed in the district having electric haulage. There was not a mule or horse used in the mine. The mine cars were small and, when full, carried one gross ton of coal. From 1895 to 1901 the mine averaged 180,000 tons a year.

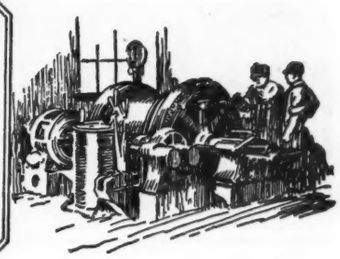


Handling the Coal on Part of Its Course Through Mt. Union Plant of the Rockhill Coal & Iron Co.

At the left are shown apron conveyors discharging onto a shaking screen. Two transfer conveyors of the apron type carry the coal from the narrow-gage railroad pits to a shaker screen within the transfer plant. This shaker, only a few openings of which may be seen, divides the coal into two products—over 4½ and under 4½ in. The oversize is picked and loaded over a picking-table loading boom and the undersize is carried by a conveyor into the coal-cleaning plant.

At the right is a battery of four vibrating screens. Each of these screens is driven independently by a 3-hp. motor. They are actuated through small throw eccentrics driven at high speed, and are composed of two decks. Each deck is made up of two screens in tandem. The upper screens separate a combination of furnace and range sizes from the stoker sizes and the lower screens separate sized stoker coal from stoker fines which are not washed. Each unit will handle a feed of 100 tons an hour. These screens are said to have the highest capacity of any in existence, each handling 100 tons per hour.

Practical Pointers For Electrical And Mechanical Men



Battery Watering Device Slides Along Cable

Method in the flushing of mine locomotive batteries will well repay the time and thought involved in its accomplishment. Water can be poured into the cells from a pitcher, but that is poor practice, for the reason that almost invariably much water is spilled on the cell covers. This moisture helps to collect dust and results in current leakage. A hydrometer syringe can be used, but filling by this process is slow and also usually results in a certain amount of spillage.

The best method is to use a small rubber hose with some sort of valve near the end. The supply to which the hose is connected can be a stationary tank, but this usually necessitates the use of a hose of cumbersome length. The accompanying photograph shows the convenient arrangement for watering batteries in the Nuttallburg, (W. Va.) mine of the Fordson Coal Co. In this charging station sufficient top has been taken down to leave room for suspending the water vessel above the locomotive.

Batteries Are Readily Charged in This Station

Above the track is a messenger cable located about 2 in. from the roof and stretched tightly. On this is hung the water tank, and the alarm box which indicates when the cells have been filled to the proper height. The outfit can be moved along the wire to either of the two locomotives on the track. At the left are charging panels for three locomotives.

A ⅜-in. galvanized steel messenger wire is stretched above the center of the track, close to the roof, between two anchor bolts. The battery watering tank can be slid to any point along this wire. With this arrangement one man can flush the cells of several locomotives in much less time than he would take were he to use any other method.

Screen Above Dry-Sand Bin Can Be Swung Clear

Often the sand-drying and handling arrangement at a mine is not as efficient as it should be. The fact that usually an extra man is required for this work and has time to spare is not a good excuse for continuing to use an unhandy and inefficient layout. If the drying can be arranged so as to take up but a small portion of a man's time, other productive labor can usually be provided for the other portion.

Considering the natural limitations of space, a handy and efficient sand-storing and drying outfit is that used by the Fordson Coal Co. at Nuttallburg, W. Va. This is shown in the accompanying illustration. The raw-sand bin is at the left, the dryer in the center space, and the dry-sand bin at the right. The mine supply track parallels the front of the shed.

The screen above the dry-sand bin is pivoted at the back end and is counter-balanced at the front end by a weight hung on the supporting cable. When dried sand is being put into the storage bin the front end of the screen is pulled down to a position somewhat lower than that shown in the photograph. The sand is shoveled on to the sloping screen which takes out any foreign material that is large enough to cause trouble. When sand is to be handled out of the bin and into the mine car the screen is raised out of the way, making it possible to get down in the bin and shovel out the sand over the end wall without inconvenience.

Shoes Outlast Wheels in Alabama Mine

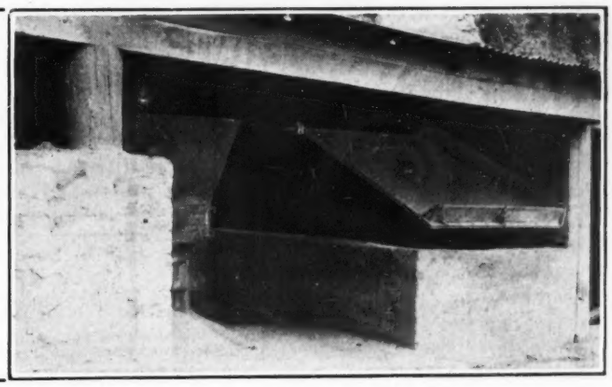
Trolley wheels lasted less than a week on a heavy-duty main haulage locomotive in the mine of the New Castle Coal Co., at New Castle, Ala. Now a shoe is used in place of a wheel, and the life is approximately three months.

M. G. Launius, superintendent, explained that recently they have started the practice of greasing the trolley wheels once a week with engine oil, and expect that this will greatly lengthen the life of the shoes.

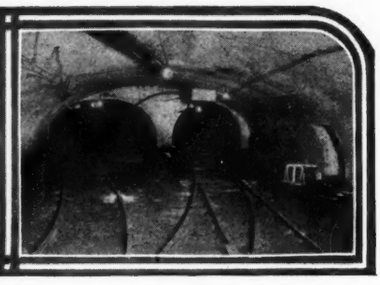
At the time that a *Coal Age* representative was in the mine with Mr. Launius, some of the locomotives were still equipped with trolley wheels. When watching the loaded locomotives pass, it was observed that seldom was there any arcing from the shoe, but that there was much arcing from the trolley wheels, especially at each hanger.

Sand House

The screen above the dry-sand bin is pivoted at the back end, the front end being supported by a wire rope which passes over a pulley and to a counterweight.



Underground Operation



Effect of Confinement on Violence of Coal-Dust Explosions

British Ascertain Effects of Exploding Coal Dust in Open Steel Tube and in One with a Partly Closed End

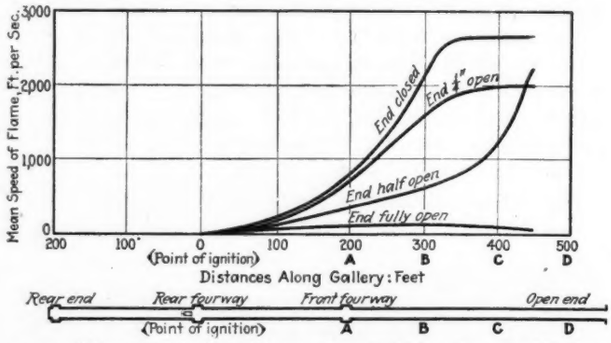
For some time it has been believed that coal-dust explosions are more severe if they occur at dead ends, with the charge, so to speak, ignited at the breach of the gun rather than at the muzzle; and recently the results of experiments made by H. P. Greenwald and R. V. Wheeler of the "Safety in Mines Research Board" confirming this belief have been published by that Board in Paper No. 14.

Briefly, the steel tube or gallery used was composed of boiler shells bolted together to form a straight tube of an internal diameter of 7½ ft. and 750 ft. long. One end was open and the other could be completely closed by a steel blank bolted in place. Except for fourway pieces inserted between adjacent boiler shells, one 200 ft. and the other 400 ft. from the rear end of the gallery, the tube was without side openings. There were no obstructions of any kind other than the rivets and the overlapping of the steel shells. In the experiment chosen for description, these fourways were closed by steel blanks. A series of wooden shelves was fastened along the gallery, five in each side. They extended from the open end to within 200 ft. of the rear end.

The explosions were started by a blown-out shot of 28 in. of black powder tamped with 8 in. of slightly damp clay, fired from a cannon having a 2-in. diameter borehole 34 in. deep. This blownout shot was fired into an open-ended tube 3 ft. in diameter and 10 ft. long, forming what will be known as the "impetus tube." This rested on the floor of the gallery in such a position that the end distant from the cannon was at the edge of the first fourway. Fig. 1 shows a plan of the gallery, giving the position of the cannon and impetus tube and of the two fourway pieces.

End Open and Closed

When fully open the flame travels at low speed, but when the end is closed it speeds along the tube at a velocity of 2,660 ft. per second.



The dust used was pulverized nut coal, ground so that 85 per cent would pass through a 200-mesh sieve. This was distributed as evenly as possible along the gallery at the rate of 1 lb. per linear foot. Twenty pounds of dust were strewn within the impetus tube, and an additional quantity was deposited on a plank, 14 ft. long and 15 in. wide, immediately in front of the tube. Beyond this plank the dust was thrown in the air by hand, right and left to settle on the floor and sides of the gallery and on the top of the shelves. No dust was strewn behind the cannon, so that there was a dustless zone 185 ft. in length between the cannon and the "rear" end of the gallery. The coal used for the experiment was Thorncliffe Silkstone having the following average analysis: moisture, 1.90; volatile matter other than moisture, 32.92; fixed carbon, 63.67 and ash, 1.51 per cent.

By the use of blanks at the "rear" end the degree of closure was regulated so as to entirely close, half-close and quarter-close the opening. The blanks in the last two cases had concentric circular holes bearing the relations indicated to the size of the full opening.

The results obtained by the explosion are as indicated in the graph Fig. 2 and in the table.

In one of the experiments with the rear end entirely closed the shell at the open end of the gallery was ruptured. When the rear end was left completely open the burning of the dust cloud was so slow that its progress could easily be followed by the eye, for the speed of the flame did not exceed 130 ft. per second, and the pressure developed was no more than 2 lb. per sq.in. at any point along the gallery. In one test with the rear end completely open, there was a strong west wind opposing the progress of the flame which sufficed to snuff it out before it could reach the end of the gallery.

Flame issued from the rear end of the gallery in all the experiments in which an opening was left there, and no inrush of air could be observed at the rear until the flame had passed out at both ends of the gallery. It was noticed, however,

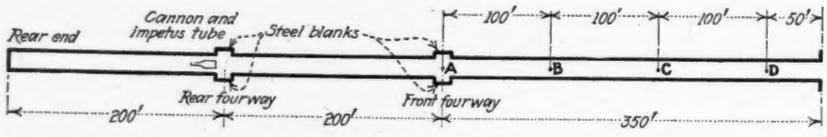


Fig. 1—Experimental Tube at the British Testing Station, Eskmeals

Tests at this station showed the not-too-astonishing fact that a cannon open at the breach or leaky along the bore does not show any real expulsive force when fired. Why didn't we think of this before?

Effect of Openings in Gallery 200 Ft. Behind Point of Ignition on Development of Coal-Dust Explosion

Condition	Mean Speed of Flame (Feet per second) O–A	A–B	B–C	C–D	Maximum Pressure (Lb. per sq.in.) B	C	D	Flame Extension
End closed	240	1,310	2,660	2,660	39	68	73	Out at open end of gallery
End ¼-open	195	1,175	1,940	2,000	22	37	70	Out at both ends of gallery
End ½-open	175	515	825	2,270	15	18	48	Out of both ends of gallery
End open	90	130	110	95	2	2	2	Out of both ends of gallery

that when the speed of the flame was slow, as a result of the opening at the rear being large, its motion was markedly vibrating, the column of dust and air preceding the flame being expelled from the gallery in puffs rather than in a continuous stream and the flame itself could be seen to issue from one of the openings two or three times, a slight inrush of air occurring between each appearance of flame.

Briefly it may be said that when the gallery was closed at the rear end and openings made in the fourway in front or behind the impetus tube, the results in general were similar but when the rear fourway was closed and the front fourway was open with the impetus tube in the position in which it is placed in Fig. 1, the pressures and flame speeds were much higher, showing that the opening behind and beside the point of ignition do more to retard the progress and violence of an explosion than when some considerable distance in front of the point of ignition. With the front fourway fully open so as to give an opening 64 per cent as large as the cross section of the gallery the pressure averaged only 6 lb. at D as against 73 lb. with the rear end and fourways all closed.

Machine Undercuts Big Rock Band Which After Wetting Is Barred Down

In the lower section of No. 3 mine of the Phelps Dodge Corporation, Stag Canon Branch, Dawson, N. M., a rock roll has been encountered which is being successfully removed by the method outlined in Fig. 1. The rooms are driven 37 ft. 6 in. wide on 75-ft. centers. The face is advanced on an angle of about 51 deg., to a depth of 300 ft.

An arcwall slabbing machine, with an 8-ft. cutter bar, advancing as shown in Fig. 1, makes a kerf 6 ft. deep. After the completion of the cut, the face and kerf are thoroughly sprinkled. The rock, which is a hard sandy shale, is friable and fractures readily upon the application of water. The entire band to the full depth of the cut is removed by means of bars, and gobbed, as shown.

The section of the seam below the rock band is then drilled, shot and loaded out, after which the top section is removed.

Steel ties are used under the rails at the face, in order to save height and avoid brushing. The track from the curve to the end is made up in short sections convenient for advancing.

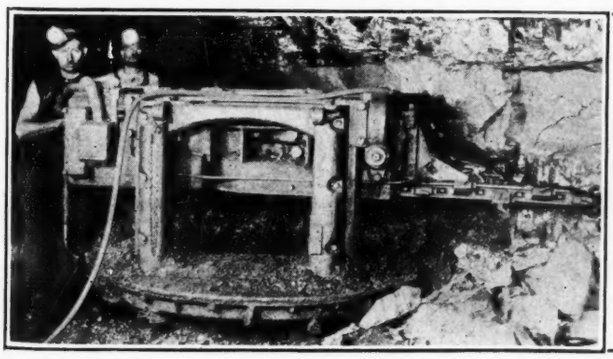


FIG. 2
Undercutting Rock Band
Shows the nature of the thick parting of rock, which, when undercut and wetted, can be readily pried down with bars.

Big bands of rock have usually marked the end of mining in the United States especially if they are larger than can be removed by a cutting machine. In Great Britain this is not so; thick rock bands are quite frequently mined and tossed in the gob, but the cost of mining is greatly increased where such bands are encountered. The question frequently arises whether to cut the band itself or to undermine it. The Gay Coal & Coke Co. mines the rock, but the Phelps Dodge Corporation undermines it.

In the Western country whether in Illinois or in the far West the measures are often quite dry, and watering breaks up the rock and clay more than in the East where water is usually present and where the measures have lost those chemical substances that are soluble in water. This may account for the readiness with which the rock band at No. 3 mine disintegrates when wetted and is so readily removed by bars.

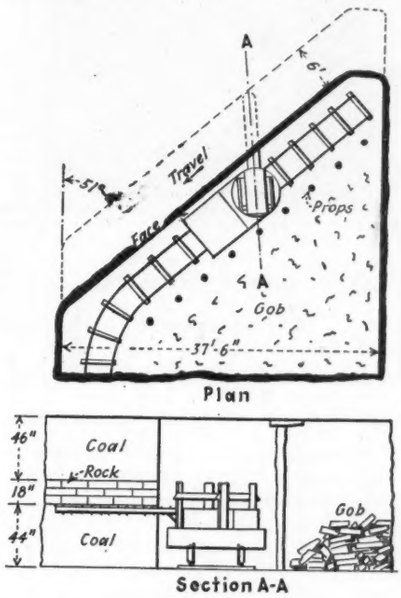


FIG. 1
Face Made Oblique to Afford Capacity
When bands can be mined or undermined they can be readily removed and then the shooting of the coal is light and easy, for the seam is in two masses instead of one.

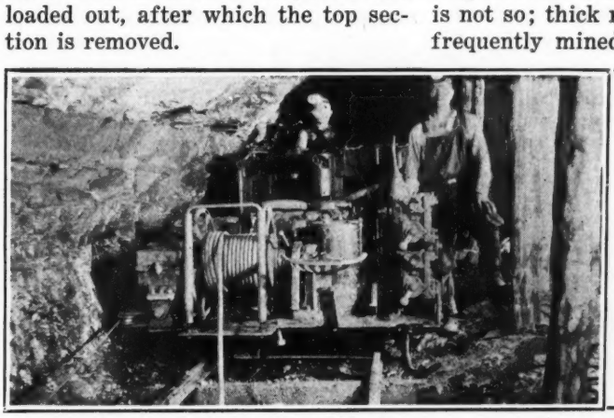
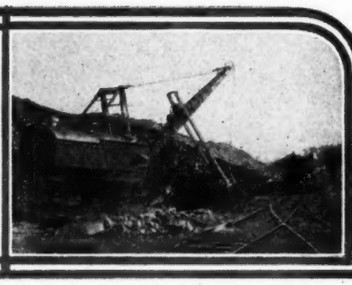


FIG. 3
Rear View of Cutter
View from the rear showing cable reel and drag line working its way across the inclined face.

News Of the Industry



Coal Legislation Barrage Opens in Congress; Treadway Urges Laws Based on Coal Commission Report

(Special Dispatch to Coal Age)

Washington, D. C., March 30.—The opening gun in the campaign to revive congressional interest in coal legislation was fired today when Representative Treadway, of Massachusetts, appeared before the House committee on interstate and foreign commerce to urge that the recommendations of the United States Coal Commission be enacted into law. Congressman Treadway, the only witness heard during the session, directed his remarks to proposals to give the President emergency powers to seize and operate mines when strikes threaten and to compel continuous fact-reporting. Under a barrage of questions, however, he receded from his position on emergency control to the extent of agreeing with Congressman Newton, of Minnesota, that such a provision might encourage deadlocks and that for that reason it might be well to withhold such legislative action until the need developed.

Although declaring that the prices charged for bituminous coal and coke during the recent anthracite strike was warrant for including soft coal in the legislative program, Representative Treadway stressed heavily the interest of New England in anthracite. The State of Pennsylvania came in for caustic criticism on three grounds: The miners' certification law, the anthracite tonnage tax and royalties. Questioned by Congressman Wyant, of Pennsylvania, as to how he could change the anthracite tax in view of the Supreme Court decision upholding the imposition, he retorted that constitutionality did not necessarily imply moral justification and that it might be possible to shame Pennsylvania into a repeal.

Pressed by Congressmen Newton, of Minnesota, and Rayburn, of Texas, as to the exact powers he wished conferred upon the President, the witness fell back upon the Coal Commission report and the Coolidge messages of 1923 and 1925 and said the President's advisers and the committee's counsel could work out that problem. He insisted, however, that more recognition should be given to the public interest and that the public should sit in in coal disputes. He put great faith in the strength of public disapprobation in correcting unfair situations.

Costs, profits, wage rates and earnings, he argued, were no longer to be treated as matters of private business. The operators, he continued, had assured the public that they were resisting the miners' demands to increase costs. Nevertheless, he alleged, since the strike the price to the public has been boosted a dollar a ton, which meant, according to his figuring, an additional tax of at least $300,000 daily on the consumer. Compulsory, continuous publicity, he continued, would be an antidote for price gouging and would discourage the sale of premium coal. Much of the latter, he charged, was company production seeking the high dollar through a middle agency.

The sharpness with which some of the questions were flung at him provoked Congressman Treadway at one stage of the hearing to blurt out that he had been told the committee was packed against him. Upon protest, he said he made that accusation in a jocular vein and the remark was expunged from the record. There were so many interruptions from committee members that Chairman Parker, of New York, several times intervened to ask that cross-examination be deferred until the witness had concluded his direct statement. When the cross-examination by the committee was over the hearing was adjourned until Wednesday morning.

Old Ben Acquires Holdings In Non-Union Fields

The Old Ben Coal Corp., with offices in Chicago and large coal operations in southern Illinois, recently acquired extensive mining properties in West Virginia and established connections in eastern and western Kentucky, all in non-union fields. This move, it is reported, was to guard the company's business against the harassment of union labor troubles incident to the increasing depression in the Central Competitive Field, which is attributed to the Jacksonville agreement. The Peabody Coal Co. announced a short time ago that it had taken over several lines of west Kentucky coal.

In its official announcement, issued March 26, the Old Ben corporation stated that the step was made in order "to meet all competitive market conditions and to reduce strike interruptions to the minimum."

Senate Confirms Woodlock; Reed Placated

Thomas F. Woodlock, of New York, was confirmed by a vote of 52 to 25 as a member of the Interstate Commerce Commission after five hours of heated debate behind closed doors in the Senate March 26.

Soon after Mr. Woodlock was nominated, on Jan. 26, 1925, the insurgents of both parties began warfare against him as a representative of "Wall Street," though nobody questioned his ability or integrity. Senator Reed, usually ultra-regular Republican, was especially hostile, complaining bitterly that Pennsylvania had been denied proper recognition in Railroad Commission patronage.

Senator Reed was suddenly converted to Mr. Woodlock when the White House announced last week that Pennsylvania would be favored for the next commission vacancy.

Mr. Woodlock has been sitting as a recess appointee since April 2, 1925.

Hard-Coal Strike Reduced D. & H. Earnings

The adverse effects of the anthracite coal strike on the earnings of the Delaware & Hudson Co. in 1925 is reflected in the annual statement for 1925 released for publication this week. The report shows net income of $4,907,708 after all charges, or equal to $11.54 on the capital stock of the road, against $5,818,376, or equal to $13.69, in 1924.

Railway operating revenues declined $3,243,497 to $41,769,491. Freight revenues decreased $3,843,306, or 10 per cent. There was a reduction of $5,192,946 in revenue from anthracite traffic, which was partly offset by an increase of $647,368 from bituminous coal traffic. The net reduction in freight receipts from coal amounted to $4,535,578, or 20 per cent.

Railroads Use Less Coal In January; Price Drops

Class 1 railroads of the United States consumed in locomotives in freight and passenger service 9,155,429 net tons of coal in January, 1926, according to a report by the Interstate Commerce Commission. This compares with 9,102,555 tons in December and 9,209,439 tons in January of the preceding year.

The average cost of coal per ton by districts decreased 1c. in the Eastern and Western districts and 2c. in the country as a whole.

Government Accepts Commission Plan To Adjust Britain's Coal Difficulties; Seek Measures for Lasting Solution

Stanley Baldwin, the British Prime Minister, announced on March 24 that the government has decided to accept the report of the Coal Commission, submitted March 10, and to pass such legislation as may be required to give effect to its recommendations for reorganization of the coal industry, provided the operators and miners agree to accept the report and carry on the industry on the basis of the recommendations.

The Premier made the government's decision known to representatives of owners and miners who had been invited to meet him in Downing Street. The government, he said, had not reached this decision without careful consideration of the report, and he indicated that acceptance of its recommendations required of the government the setting aside of certain preconceived opinions.

"The conclusions reached by the Commission," said Mr. Baldwin, "do not in all respects accord with the views held by the government, and some of the recommendations contain proposals to which, taken by themselves, the government are known to be opposed."

The Prime Minister said the government, however, had made its decision in the hope that, with the co-operation of all parties, it might be possible to find "a lasting solution of the problem."

Herbert Smith, president of the Miners' Federation, put a question which led the Prime Minister to make a statement in regard to the coal subsidy. This subsidy was granted last August for nine months, and is due to terminate at the end of next month. The Commission recommended that it should be abolished, and the government's acceptance of the report includes acceptance of that recommendation.

"But I recognize," said Mr. Baldwin, "that in some districts, if a settlement is to be reached, the sacrifice that might be required would be heavy, and if an agreement can be reached by May 1 I shall be willing to consider what temporary assistance may be required to ease the situation."

The Premier stressed two points in connection with further financial assistance from the government. In the first place, the amount of money available in the present condition of the country's finances is limited, and in the second place, the period for which further assistance is given also must be limited. The Prime Minister suggested that it be three months.

"Not one ton of coal will be handled throughout the country" if the government's decision in the coal controversy is unsatisfactory to the miners and they have to strike May 1, said A. J. Cook, secretary general of the Miners' Federation, in a speech at Westminster March 24.

"We also have made sure that no coal shall enter this country from America or Germany," he added. "We are not going to be slaves any longer. The miners will starve before they accept any reduction in wages."

The speech of Mr. Cook was delivered after he had been present at the two-hour conference between Premier Baldwin and the miners and operators' representatives.

Sale of Coxe Bros. Probable

Roger Shale, of Washington, D. C., has been appointed by the U. S. District Court to succeed the late Thomas R. Marshall as trustee, with James Neale, of Coxe Brothers & Co., Inc., coal subsidiary of the Lehigh Valley R.R. In some quarters this is seen as a step toward the separation of the coal company from the railroad. With two active trustees, railroad men believe that the next move will be an invitation of bids for the coal company. Mining engineers have gone over the property and submitted a report to the railroad company regarding its value. It is expected that Coxe Brothers will be sold outright.

Miners Discuss British Coal Commission Report

Herbert Smith, president of the British Miners Federation, is shown in the act of telling what he thinks of the findings of the Royal Commission. In the front row are W. Richardson, Tom Richards, Mr. Smith and A. J. Cook, secretary general of the Federation.

Industry Has Coal Supply For 35 Days

During February industrial consumption of bituminous and anthracite coal increased slightly over the preceding month, according to statistics compiled by the National Association of Purchasing Agents. The estimated consumption was 43,747,367 tons. Because of the depleted stocks of anthracite, the industries reporting showed an increased consumption of bituminous coal. The total consumption, however, is approximately eight million tons above that of the February (1925) mark.

Stocks of coal in the hands of industrial consumers on March 1 totaled 60,014,527 tons, compared with the Feb. 1 figure of 66,190,000 tons. Stocks on hand March 1 were sufficient to last 35 days at the February daily consumption rate of 1,706,424 tons. This is a drop from the figure for Feb. 1, which showed 49 days' supply on hand, and a slight drop under the figure for March 1 last year, when there was coal enough to last 38 days.

Receivers Likely to Sell Carbondale Coal Corp.

Robert P. Hobson, of Louisville, and Allen W. Mason, of Baltimore, who were named receivers for the Carbondale Coal Corp. by federal Judge Charles L. Dawson, in Louisville, have arrived in Madisonville, Ky., and taken over the properties involved. The Carbondale Coal Corp., which formerly was the Hawley-McIsaac Coal Co., has been operating coal mines in Hopkins and Ohio counties for several months.

Judge Dawson granted a receivership as result of a suit filed by the Baltimore Trust Co. against the Carbondale corporation. This action was precipitated by the corporation's failure to pay instalments on a sinking fund due upon an issue of $720,000 of bonds, according to announcement by Gordon, Gordon & Moore, attorneys.

Hobson's first move upon reaching Madisonville was to order suspension of operation at all of the plants controlled by the corporation. He was unable to say when operations will be resumed.

The Carbondale Coal Corp. owns large stripping operations at Carbondale and Nebo, in Hopkins County, and at Morrison, in Ohio County. It employed 175 workmen and produced 2,500 tons of coal daily. It is likely the properties will be sold under the hammer on court order for enforcement of the mortgage.

Federal Judge Dawson has postponed the sale of the D. B. Gore Coal Co., Providence, Ky., recently declared bankrupt, until April 6. The original order called for a sale on March 24, but because of unavoidable delays a postponement was found necessary, according to the announcement. The Gore company has been operating a stripping plant near Providence. It owned large undeveloped acreage.

N. Y. Retailers Discuss Outlook for Soft Coal and Coke as Anthracite Rivals

Sharp differences of opinion as to the permanency of the markets won by bituminous coal and coke during the anthracite strike marked the discussions forming the major part of the program of the regional group meeting of the New York State Coal Merchants' Association at the Hotel Pennsylvania, New York City, March 25.

Walter R. Morris, Seaboard By-Products Coke Co., tracing the growth of byproduct coke production in recent years, was confident that coke as a domestic fuel was here to stay and warned the retailers that unless they co-operated in the distribution the coke ovens would find other means of selling to the consumer. Charles A. Owen, president, Imperial Coal Co., forecast a slow but steady gain for high-grade bituminous coal, particularly in the suburban communities and among those consumers to whom price was the controlling consideration. The natural increase in population also would be a factor in developing such a market because anthracite production could not keep pace with such an increase.

Say Anthracite Will Come Back

On the other hand, Arthur C. Wadley, president, Shanferoke Coal & Supply Co., in a paper read in his absence by Roderick Stephens, vice-president, Stephens Fuel Co., saw no barriers to the triumphant return of anthracite. Oil, he held, must be a lessening factor because of cost, uncertain supply and danger. Byproduct coke can compete only on a price basis and the increased costs of handling through the retail yards because of its bulk makes it unattractive to the retail coal merchant. Bituminous competition was too insignificant to be considered seriously. The incidental damages to property, menace to health and the methods required to burn it successfully all militated against its use.

Speaking from the retailer's standpoint, Hiram Blauvelt, vice-president, Comfort Coal & Lumber Co., urged vigorous merchandising methods to check the inroads of oil and praised the co-operation possible through the Anthracite Coal Service in meeting oil competition. He also pleaded for more stability in the merchandising policies of the operators, citing the situation in pea coal to illustrate his point. Responding to producers' appeals two or three years ago, his company had built up a consumer demand for pea coal which today it cannot fill because it cannot get enough of that size.

Mr. Blauvelt criticized the failure of the operators to take the retailers into their confidence as to price changes far enough in advance to permit them to map out adequate merchandising programs. In this connection he suggested that prices be changed on May 1 by a $1 reduction, with 25c. increases each month until the winter basis was reached. Such a basis, he felt, would offer a greater incentive to early buying than the old 10c. monthly discount system.

Lignite as Locomotive Fuel

Texas Lignite is being tested by the Missouri Pacific R.R. as a locomotive fuel in one of its locomotives running out of Palestine, Texas, on the International Great Northern. The engine has pulled as many as ninety-six cars, and as a steam producer the lignite is said to have been a success. The greatest fault of lignite in tests in Wyoming, Montana and Colorado is said by Kansas City operators, interested in those states as well as in the Southwestern district, to be sparks spread over the right of way and adjoining fields by the forced draft. The Missouri Pacific on some of its northern runs is now using northern Montana lignite, while the Rock Island is burning lignite in Colorado to a limited extent.

The meeting closed with a dinner at which Walter Gordon Merritt, general counsel for the Anthracite Operators' Conference, was the principal speaker. Mr. Merritt's subject was "The Public Stake in Anthracite." He declared unequivocally that the new wage agreement carried no provision, expressed or implied, for the check-off. The contest, he said, has taught the United Mine Workers that a strike can be lost and has demonstrated to the operators that a strike can be won. The politician has learned that meddling is undesirable and the public now knows that anthracite is not a necessity.

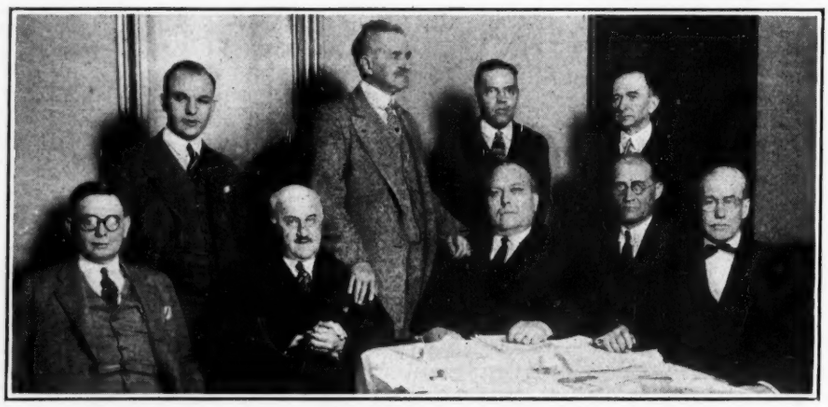
The Missouri Pacific R. R. applied to the Interstate Commerce Commission on March 25 for authority to acquire control of the Marion & Eastern R.R., a coal line extending from Marion to Paulton, Ill., a distance of 11.5 miles. The stock of the road is valued at $190,000. The Marion & Eastern through consolidation with the Missouri Pacific would have direct outlet to St. Louis and other coal markets.

N. C. A. Names Delegates to U. S. Chamber Meeting

Delegates of the National Coal Association to the annual meeting of the Chamber of Commerce of the United States were appointed March 23. The members of the delegation are engaged in the production of bituminous coal in the states of Colorado, New Mexico, Wyoming, Indiana, Kentucky, Ohio and Pennsylvania. They are: M. L. Gould, president of the Linton Coal Co., Indianapolis, Ind.; W. M. Ritter, Washington, D. C., chairman of the board of the Red Jacket Consolidated Coal & Coke Co., of Red Jacket, W. Va.; Whitney Warner, Cleveland, vice-president of the Warner Collieries Co., with operations in Ohio, West Virginia and Kentucky; John M. Jamison, Greensburg, Pa., president of the Jamison Coal & Coke Co.; G. P. Bartholomew, New York City, general manager of the coal department, American Smelting & Refining Co., with operations in Colorado and New Mexico; R. J. Ireland, Amityville, N. Y., president of the Owl Creek Coal Co., Gebo, Wyo.

Mine Inspectors' Institute Plans Live Program

The Mine Inspectors' Institute of America will hold a meeting May 11 to 13 at the Seventh Avenue Hotel, Pittsburgh, Pa., according to an announcement by G. B. Butterfield, secretary. The program, which is not yet complete in detail, will include the following subjects: "The Single-Entry System"; "Comparative Fatality Rates"; "Comparative Policies of Federal and State Mining Activities"; "Recent Coal-Mine Explosions"; "Regulations Governing Safety in Mines"; "Regulations for the Use of Permissible Explosives"; "Approved Electrical Mining Machines"; "Self-Rescuers"; "How Dust is Controlled by Watering in Alabama." A banquet has been arranged and a committee of six has been appointed to devise other entertainment features.



Men Who Took Part in Drafting Program for Cincinnati Meeting Of American Mining Congress

As the program committee is constituted chiefly of operating officials representing all coal centers of the country, questionnaires were sent out inviting each to contribute suggestions as to topics and speakers for the Cincinnati meeting. From the returns were selected the most weighty and attractive suggestions by the above group which met in Pittsburgh on March 20. They are, from left to right: Sitting, C. W. Wilson, S. A. Taylor, Ezra Van Horn, E. J. Newbaker and A. P. Cameron; standing, Alphonse F. Brosky, J. F. Callbreath, Newell G. Alford and George F. Osler. L. E. Young, of St. Louis, who also attended this meeting, was absent from the room when this photograph was taken.

Increasing Statistical Work Among Coal Associations Presages Plans To Meet End of Jacksonville Pact

By Paul Wooton
Washington Correspondent of *Coal Age*

A revival of statistical activities among the local coal associations is noted by the Bureau of Coal Economics of the National Coal Association. An idea of the present extent of statistical reporting among the local associations may be gained from the following:

Stover's Smokeless Coal Bureau represents the smokeless fields of southern West Virginia. Its reports cover a rather wide range. There is a daily report showing by companies, for each of five subdivisions of the smokeless territory, the number of hours worked each day by each mine, the number of tons mined and the tons mined to date. A weekly distribution report of carload shipments classifies such shipments under ten grades and thirty-one destinations. Finally it publishes a weekly sales report of past transactions showing for each price the number of cars shipped at that price during the week for each of eight grades of coal and to each of six general destination groups.

For some months the Operators Association of the Williamson Field has been carrying on statistical work through a bureau of coal statistics which is finally intended to cover the high-volatile fields of southern West Virginia, eastern Kentucky and Virginia. Kanawha has joined forces with Williamson and they have opened a central statistical office at Huntington, W. Va., known as the Bureau of Coal Statistics of the High-Volatile Fields of Southern West Virginia, Eastern Kentucky and Virginia. The Logan district is about ready to join forces with Kanawha and Williamson.

Record Seam that Coal Is From

The Williamson reports as they have been issued show day-by-day sales at different prices grouped under seven grades, four destinations and five classes of use. They also show the particular seam in which the mine is located, whether the sale was spot or contract, whether it was to a jobber or a consumer, and the average price per ton spot sales and contract sales separately.

The Harlan County field of Kentucky issues a daily report showing the number of cars sold at each price during the day, grouped under six grades and four destinations. It also indicates whether the sale was spot or contract.

The Virginia Coal Operators' Association publishes a similar report based on daily shipments. It indicates the number of cars shipped at each price grouped under seven grades, twelve destinations and four classes of use. The reports also show whether the sales were spot or contract and, if the latter, the date when the contract was entered into.

The Southern Appalachian Coal Operators' Association recently inaugurated a daily sales report in which individual prices and number of cars shipped at each price are shown under eight grades, two destinations and four classes of use. The report also indicates the particular part of the field in which the mine is located and, for everything except spot sales, the date on which shipments are to be made.

The first weekly past sales report of the Brackett Statistical Service, operating in the northern West Virginia or Fairmont territory, was issued as of Feb. 16, 1926. This report differs from those already described in that it does not give the price of each individual transaction, but average high and low prices. The transactions are grouped under four grades and six destinations. Sales to brokers and to consumers are shown separately. The report covers both spot and contract sales.

The Alabama Fuel Association recently launched a past sales report which shows the number of cars sold at each price day by day. The seam from which the coal comes is indicated. The sales are grouped under ten grades and seven destination points. In some instances the date on which the coal is to be shipped is shown and in some cases it is indicated whether the sale was spot or contract.

Movement Is Spreading

The Central Pennsylvania Coal Operators' Association has made arrangements for inaugurating a similar statistical report. West Kentucky is actively engaged in formulating plans for similar work. The Southwest Interstate Coal Operators' Association also is considering similar plans.

Other associations are giving the matter of statistical reports active consideration.

These highly needed activities suggest the desirability of drawing together the results of local statistics into a comprehensive summary for the country. The Bureau of Coal Economics of the National Coal Association was designed for just that type of work. Its head, Alan H. Willett, is an economist and statistician of national reputation.

It is the hope of various officials in Washington who are interested in coal that the industry will undertake a constructive fact-finding program of its own. This will give the federal government an opportunity to concentrate on problems that industry will not undertake to solve.

Statistical work is expensive and the coal industry is poor as never before, so there are financial objections which will have to be overcome, but it is believed the wisdom of expenditures for such purposes is fairly well established among the producers, at least. Outlays in that direction ought to pay handsomely in promoting more efficient distribution; in avoiding shortsighted flooding of markets with unsold coal; in making possible a wiser program of production and in allowing the formulation of definite plans for future development.

In this connection consideration also should be given to the fact that the end of the Jacksonville agreement is only a year away. Its termination promises a period of uncertainty and stress, a period of controversy and public discussion. The industry must be ready to justify its case, both with the miners and with the country. The agreement may be renewed on the same terms. It may be renewed with different terms. The union districts may decline to renew at all.

Regardless of what happens it is perfectly plain that the coal producers will be in a position where they must have their case well prepared. The time is coming within a year when there will be desperate need for statistical data. A good start is being made. The clearing house exists, but as yet has not the support necessary to function on a scale commensurate with the increased activities of the local associations.

Labor Studies Records Of Congressmen

The executive council of the American Federation of Labor is making a study of the legislative records of members of Congress affecting labor measures. When records have been completed the Federation will send them into each Congressional district to be used in the elections next autumn. William Green, the Federation's president, said that 90 per cent of the 35,000 local unions in the country have formed non-partisan political campaign committees to participate both in the primaries and general elections.

Union Labor Starts Battle Against Injunctions

The American Federation of Labor made its first move in a national drive against the use of injunctions in labor disputes, at Albany, N. Y., March 26, when Assemblyman Frederick L. Hackenburg, Democrat, New York, introduced a bill defining combinations and conspiracies in trade and labor disputes and proposing that issuance of injunctions be prohibited in industrial controversies.

The bill, according to Mr. Hackenburg, is intended to "end the present abuse of discretionary injunction power by courts to inject themselves into labor disputes, arbitrarily."

Briefly reviewing the history of labor's campaign against issuance of this type of injunctions, the Assemblyman declared that the power of the first was employed after the railroad strikes in the latter part of the nineteenth century, and that since the American Federation of Labor has conducted a fight in every state, and at Washington, against the injunction power.

The New York Legislature, he added, is the first in which the present bill has been introduced, but that it will follow this year or next in legislatures of all the states.

Machine Scale Ratified in Kansas; Loaders Get 90c.; Operators, 25c. per Ton

A machine mining scale for District 14 (the Kansas coal field) was formally ratified in Pittsburg, Kan., March 22, after having been agreed to two days earlier at the conclusion of negotiations extending over six weeks.

The machine rate is divided into the following differentials:

Ninety cents a ton to the miner for loading.

Twenty-five cents a ton to the machine runner and helper for undercutting the coal.

Ten cents a ton to the operators for furnishing the electrical machinery and other equipment.

The rate is based on $1.25 a ton. Although the miner receives 90c., or 35c. less per ton than the pick miner, the larger tonnage per day will equalize this, according to a statement issued for the Southwestern Interstate Coal Operators Association by W. L. Johnson, general commissioner.

In pick mining much of the coal is removed from the solid wall by blasting, resulting in approximately 50 per cent slack, but machine mining will give a larger percentage of lump, operators say.

At intervals for several years operators and the union officials had made efforts to agree on a scale. A representative of the international union was present during the negotiations, which were held in Pittsburg and Kansas City. Twenty-seven machines are now in use and consummation of the contract is expected to increase the number.

The machine scale will go into effect at once and expires March 31, 1927, at the same time the present pick mining scale expires. The contract provides that either party to the contract may within 90 days reopen negotiations if it deems an adjustment of the scale for dead work necessary.

Pittsburgh Coal Co. Omits Preferred Dividend

Dividend payments were suspended on the preferred stock of the Pittsburgh Coal Co. at a meeting of directors held in Pittsburgh, March 24. The regular quarterly dividend of 1¾ per cent was due to be declared at this time. A statement issued by the company said that "the dividend was not earned and it would be inadvisable to pay it out of surplus." The accrued unpaid dividends bear interest at the rate of 5 per cent. The directors felt the necessity of conserving working capital after a year of unprofitable operations, according to reports. It was further pointed out that the policy of modernizing the properties of the company would be continued. This work is being carried on for the purpose of improving mining methods in order to overcome high labor costs.

The following directors whose terms expired were re-elected for three years: W. K. Field, D. L. Gillespie, J. D. Lyon, A. J. Miller and W. M. Knox, William G. Warden was re-elected chairman of the board.

Roads Spent Heavily for Betterments in 1925

Class 1 railroads of the United States expended $754,000,000 in the form of capital expenditures for new equipment, improvements to facilities and extensions in 1925, according to a report by the Bureau of Railway Economics to the American Railway Association. Of this amount, about 45 per cent, or $339,000,000, went into new equipment in 1925, while the remaining 55 per cent, or $414,600,000, was expended for additions and betterments to roadway and structures.

As a result of these large capital expenditures the rail carriers in 1925 operated with the greatest efficiency and economy in their history and supplied to the shippers of this country the best transportation service that has ever been offered to them.

Despite this record efficiency, which has been increasing since the railroads were returned to private control in 1920, they have not earned either on their property investment or on their tentative valuation as fixed by the Interstate Commerce Commission, the "fair return" as fixed by the Commission.

N. C. A. to Hold Three-Day Annual Meeting in Chicago

The ninth annual meeting of the National Coal Association will be held at the Drake Hotel, Chicago, June 9, 10 and 11. This was the decision of the program committee, which held its initial meeting in New York City March 23, with the following present: Messrs. Gould, Van Horn, Richardson, Mouser, Kennedy, Shirkie and W. C. Shank (representing Mr. C. F. Spencer). Telford Lewis, chairman, was unable to attend because of illness.

Research will be the major subject discussed at the Wednesday morning session, June 9. On Wednesday afternoon there will be a sectional meeting of purchasing agents, at which the successful practices of the New River Coal Operators' Association along lines of co-operative buying will be described.

There will be three sessions on Thursday, the 10th. The morning session will be given over to insurance and safety; in the afternoon there will be a sectional meeting of sales agents and sales managers of coal companies; a banquet will be held in the evening. The program for the morning session of the third day includes discussion of taxation and a paper on the banker's viewpoint respecting consolidation proposals and the like.

A program is being arranged that will be rich in material of practical value to every bituminous coal operator and it is hoped that the interest of the industry will be centered in Chicago during the week of the annual meeting. The sessions will be open to nonmember operators and to the public.

Erie Coal Holdings May Be Segregated Soon

The coal properties of the Erie Railroad Co. valued at from $35,000,000 to $85,000,000 will soon be segregated, it is believed, in accordance with the ruling of the Interstate Commerce Commission. It is thought that the same plan will be followed in separating the coal properties from the railroad company as was followed in the case of the Delaware, Lackawanna & Western and the Lehigh Valley. A few years ago there was considerable opposition to the segregation by directors because it was pointed out that the road needed the income from the coal holdings, but now since the earnings from the railroad itself have increased so much they are not nearly so vital.

It is also thought that the directors will want to take some action on the separation of these properties before the inauguration of dividends on the first preferred stock. Earnings are running sufficiently well at present to permit the payment of dividends on the stock, but whether it would be advisable immediately is declared to be a question.

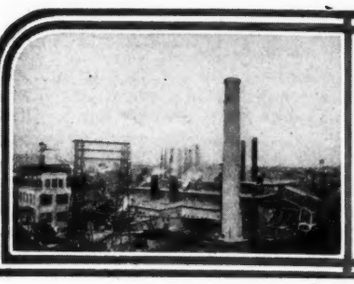
The coal properties are carried on the books of the Erie R.R. at $35,000,000, while the Van Sweringens testified before the Interstate Commerce Commission in the Nickel Plate hearing that they were valued at $85,000,000. Disinterested outsiders have placed the value as high as $100,000,000. The Interstate Commerce Commission in rejecting the Nickle Plate merger called attention to the fact that the properties had not been segregated.

Funds Voted for Study Of Mine Accidents

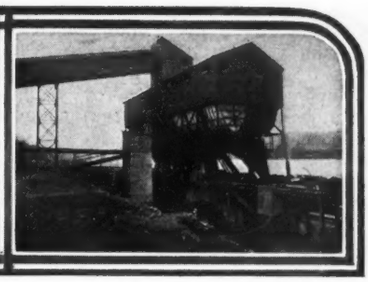
The House of Representatives, at Washington, has passed the Departments of Commerce, State, Justice and Labor appropriation bill carrying funds for the Bureaus of Mines and Standards and other bureaus as recommended by its appropriations committee. On motion of Representative Taylor (Dem., W. Va.) the House increased from $396,000 to $403,500 the appropriation of the Bureau of Mines for investigation of mine accidents. A previous amendment to fix the fund at $411,000 was defeated by a vote of 20 to 36. Mr. Taylor said that with $15,000 the Bureau could start a scientific investigation of the causes of the fall of roof and coal in mines.

May Keep Tabs on Inquiries In Trade Trend Records

Consideration is being given at the Department of Commerce to a plan under which a record would be kept in some instances of inquiries as well as orders. The current condition of industries now is judged largerly by the volume of orders. In some industries there is a considerable lag between the inquiry and the order. By plotting the inquiries over a good cross-section of certain activities some idea of the trend of demand could be had. The gathering of this information is expected to be of more value after the first year, when the curve can be compared with that of the preceding year.



News Items From Field and Trade



ALABAMA

A new coal washery of modern design is being constructed by the Porter Coal Co. at its Porter mine, near Palos, Walker County. This company has expended a large amount recently at this operation in the way of new equipment to increase production and improve preparation. The mine is owned and operated by W. C. Adams and E. J. Rowe, of Birmingham.

COLORADO

Officials of the Bear Canon Coal Co. were exonerated from all blame of the explosion in the Bear Canon mine No. 3, Valloroso, on Jan. 29 last at a hearing held at Walsenburg before the state board of examiners and the state coal mine inspector. In this explosion three men were killed outright and one died of burns at the local hospital a few days later. A number of other miners were burned, a few seriously, by the explosion.

Students taking engineering at the Colorado School of Mines in the future may have the option of taking either metal or coal mining, the school having installed a coal-mining department. A large number of students are taking advantage of the new course, it is said.

The Colorado Fuel & Iron Co.'s report for 1925 shows gross business of $34,537,134, against $39,297,320 in 1924, and net income, after all deductions, of $1,752,427, against $520,285. The net income for 1925, after preferred dividend requirements, was equal to $4.65 a share earned on the $34,235,500 common stock outstanding, against $1.05 a share earned in 1924. J. F. Welborn, president, in his report to stockholders, said the company expended $2,442,732 in 1925 for additions and improvements.

Coal production in Colorado registered a decrease in February from the figures set for the same month last year, according to the monthly report by James Dalrymple, state coal mine inspector. The report showed 749,506 tons produced during February, compared with 1,079,061 tons in January, the total for the two months, 1,832,074 tons, being 322,620 less than was mined for the first two months of 1925. An average of 12,216 men was employed mining coal in Colorado in February, the report showed.

The state Supreme Court has been asked to decide whether the state can compel a man against his own wishes to properly safeguard his own life. The question came up in an appeal from a Colorado Springs district court, where James Dalrymple, state coal mining inspector, lost his fight to compel Fred Sevcik to install safety measures in a small coal mine which Sevcik owns and operates by himself. District Judge Cornforth ruled that in this instance the state law requiring a coal mine to have a certified foreman and ventilation fans was unreasonable and unconstitutional, and issued an order preventing Dalrymple from further interference in Sevcik's mine.

The Rockvale and Fremont mines of the Colorado Fuel & Iron Co. have closed for the season, during which time extensive development work will be carried on with a small force of men. The Coal Creek mine will continue in operation and a large majority of the force from the two other properties will be taken care of at Coal Creek.

ILLINOIS

Judge George W. English of the U. S. District Court in East St. Louis, on March 24 advised the receivers for the Southern Gem Coal Corp. that an amended petition be filed with the court in April so that a sale of all the properties of the corporation may be held. This will permit a marshaling of the assets of the company and the court will then be in a position to pass on the priority of claims. Judge English took this action when requested by the receivers, N. C. McLean, of East St. Louis, and William Wilson, Pinckneyville, to give directions as to further procedure in the case.

Mine No. 1 of the Chicago, Wilmington & Franklin Coal Co., known as the "Old Orient," at West Frankford, resumed operations last week after a suspension of four weeks. This mine employs about 1,000 men. Mine No. 1 of the Bell & Zoller Coal Co., at Zeigler, also resumed operations with about 40 per cent of the 1,100 employees ordered to work. The unexpected reopening of these mines is one of the most encouraging signs of a return to normalcy in these fields in many months.

The last big mine in Grundy County ceased operations March 20 and Coal City no longer has a reason for its title. The Wilmington Company's mine No. 7 will be dismantled. Where a few years ago Coal City and South Wilmington were centers of great coal activity, now there is nothing left but small mountains of slag and slate to recall the industry. One small wagon mine is all that is left in operation in this district. There is plenty of coal in the mine, said the superintendent, Joseph Campbell, but advancing wages and freight rates had given other mining centers insurmountable advantages. The mines here had been in operation for fifty years, in which the shafts of the community produced as much as 1,500 tons daily.

INDIANA

The executive board members of 21 districts of the United Mine Workers of America went into session at national headquarters, Indianapolis, March 22 for the first time in ten weeks. The meeting was delayed by the anthracite strike. The session will continue two weeks. The first few days were devoted to appeals from decisions and routine business within the organization. The Indiana coal trouble likely will be given some official attention, it was said.

Harvey Cartwright, vice-president of district No. 11, United Mine Workers, in a recent trip to Indianapolis reported that more miners were leaving the non-union operated mines in the Evansville field and that the working force of each mine was becoming more depleted. He said everything was peaceful. He admitted, however, that no additional coal operators had signed agreements with the mine workers, the John Bull and Erie Canal mines being the only two which were operating on a union basis.

The Western Indiana Mining Co., of Terre Haute, has filed a preliminary certificate of dissolution.

A three weeks' strike at Atlas No. 1 Mine, near Petersburg, was brought to a close March 15 when the Pike County Coal Co., the owners, agreed to give employees turns at work in the mine. The working force was reduced more than 50 per cent, but the work was divided among the men so that all will get two or three days' work a week when the mine is operating at full capacity. The mine is the largest deep-vein pit in southern Indiana and has a daily output of 2,600 tons.

The American Cannel Coal Co., Cannelton, has reduced its capital stock from $50,000 to $25,000.

KANSAS

Would Coke Kansas Coal.—Dean P. F. Walker, of the engineering school of the University of Kansas, at a meeting with State Teachers College instructors, coal operators and representatives of the Chamber of Commerce in Pittsburg March 19 declared there are great possibilities for coking Kansas coal and urged that a fund be raised for experimental purposes. He warned that shipping coal by barge

from St. Louis to Kansas City on the Missouri River may take the Kansas City market away from the Kansas mines. A fund of not more than $30,000 would provide for adequate tests, he said. He said that coke now sells in Kansas for $13 or $14 a ton but that it could be produced there at a cost of $5 or $6 a ton and the by-products would be valuable.

Kansas mined 4,813,088 tons of coal in 1925, according to the complete official report of James Sherwood, state mine inspector. Output in the preceding year was 4,491,069 tons. Kansas mine employees in 1925 numbered 9,471, compared with 8,743 in 1924. Fatal accidents numbered eleven, four more than in the preceding year. Non-fatal accidents totaled 704, while in 1924 there were 813. Production by counties was as follows: Crawford (deep), 2,752,984 tons; Crawford (shovel), 338,711; Cherokee (deep), 479,180; Cherokee (shovel), 724,263; Osage, 95,227; Linn, 53,760; Leavenworth, 95,563; Franklin, 1,497; Bourbon, 17,428; Neosho, 4,475; Miscellaneous, 250,000.

KENTUCKY

The Daniel Boone Coal Corporation, of Lennut, Ky., is reported to have taken over the mines and plant of the Kentucky River Coal Co., on Lost Creek, near Heiner.

A tipple is under construction at the new Lee's Switch coal mine, near Henderson. The mine is being sunk toward a 4-ft. seam of coal 220 ft. beneath the surface. Harry Jennings and several other Henderson men are sinking the shaft.

MISSOURI

The Western Coal & Mining Co. hoisted the first coal from its new mine No. 23, near Minden, on March 18, when it made a run of 300 tons. When fully developed the mine will employ 300 men. The seam is from 2 ft. 10 in. to 3 ft. 2 in. thick and is 60 ft. deep. The Western's mine No. 22, near Arma, will be ready for operation by next fall, giving the company six large mines.

There are prospects of another by-product coke plant locating in St. Louis. Definite action is expected on this in the next three months. It probably will be located on the river and will offer rail and water transportation for both coal and coke.

OHIO

The Charter Oak Coal Co. has been formed by 10 miners, who will open a small mine in the Pomeroy field on a co-operative basis. A royalty is to be paid the mine owner.

Acting for Willis J. Richardson, former president of the defunct Richardson Coal Co., of Cincinnati, Attorney Frank Wood has offered the referee in bankruptcy for the U. S. District Court at Cincinnati to compose the indebtedness at 33c. on the dollar. The coal company was thrown into the hands of a receiver last fall. Richardson in February went into bankruptcy, scheduling $24,000 as liabilities and $700 as assets. His attorney says relatives have come to his rescue, making the settlement possible, and asks that his creditors meet and approve of the offer.

Bids will be received April 14 by the Columbus Board of Purchase for coal for city departments as follows: 12,500 tons of Ohio nut, pea and slack for the municipal light plant; 6,700 tons of Ohio nut, pea and slack for the Scioto River pumping station; 2,500 tons of Ohio nut, pea and slack for the garbage disposal plant; 500 tons of West Virginia nut, pea and slack for the coal pulverizers at the garbage reduction plant. H. C. Cain, is secretary of the Board.

PENNSYLVANIA

Former Mayor P. B. Brown, of Pittston, has embarked in the coal business with Thomas Lynott, an experienced rock contractor. They have taken over a plot of ground on the mountain east of Pittston. It is understood that there is a coal seam 11 ft. thick at some portions of the new operation. For the present the coal is being hauled from the property to a breaker in Dunmore and there prepared for market. Later on the mineral will be shipped to Dunmore in railroad cars.

The York Farm Coal Co., which has conducted a mining operation near Pottsville for several years, is now engaged in dismantling its washery there. This action is due to the fact that the huge culm dump formerly connected with the York Farm mine of the Lehigh Valley Coal Co. has been virtually worked out. The washery machinery is being shipped to Herdnon, where it is understood that culm deposits are to be taken from the Susquehanna River.

The Clinton Iron & Steel Co., at Pittsburgh, has resumed operations at its blast furnace on the south side, which had been banked for the past three months. In order to keep this furnace supplied with coke the Snowdon Coke Co., owned by the same interests, has fired up 120 of the 200 ovens put out when the anthracite strike was settled. This company now has 220 ovens in blast.

W. J. Rainey, Inc., have put out 200 ovens at their Allison plant and have closed down their Royal plant altogether for an indefinite period, during which time their plant will be completely electrified.

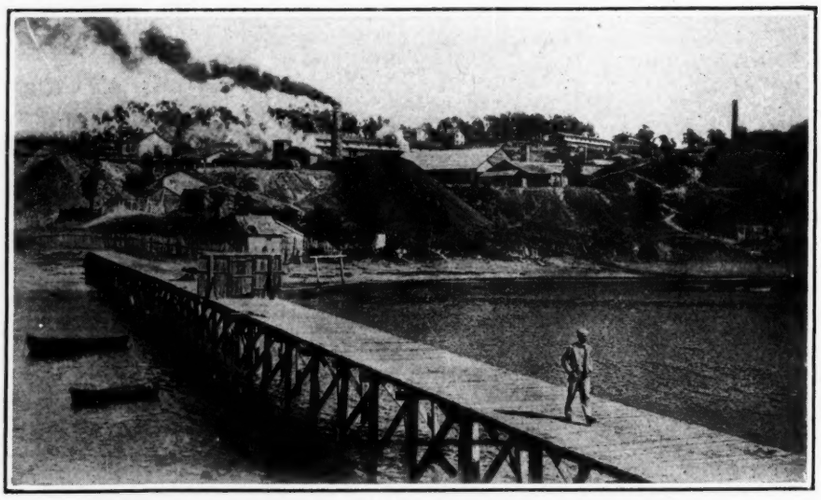
The Oliver & Snyder Steel Co. has put out 100 ovens. The H. C. Frick Coke Co. is putting out additional ovens, as is also the Puritan Coke Co.

David Thomas, a member of local union 1157, United Mine Workers, of Mocanaqua, who was suspended by the local union for ninety-nine years for his alleged part in the framing of a resolution concerning arbitration during the resent hard-coal strike, has been restored to good standing in the union. The executive board decided that the evidence upon which the suspension was based was not sufficient.

The executive board of District 1, United Mine Workers, has approved a plan to have all offices of the district organization with the exception of the legal department, located in Scranton. Attorney Roger J. Dever, who is the general counsel for the union, will retain his office in the Miners Bank Building, Wilkes-Barre. Former sub-district offices located in Wilkes-Barre will be removed to the Coal Exchange Building, Scranton.

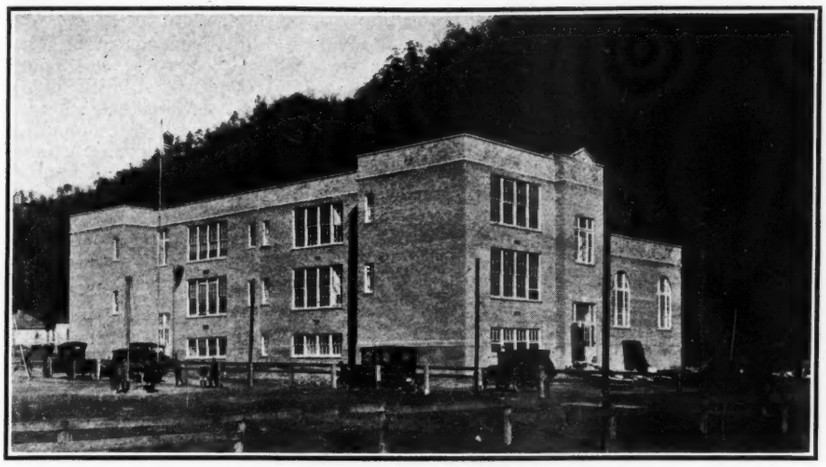
The Spring Mountain Colliery, near Jeannesville, has been declared the most efficient of all the Lehigh Valley Coal Co. and Coxe Brothers operations. Company experts studied the records of the collieries for June, July and August last and awarded the efficiency banner to the Spring Mountain plant.

John J. Golby, superintendent of the Consolidation Coal Co. mine at Pine Hill, Somerset County, was instantly killed on March 15, when he was caught in a gas explosion in the mine. His body was badly burned and mutilated. Two other men with him escaped. Gas was detected in the mine a week before and Mr. Golby had entered the mine to



Chilean Coal Mines at Lota, First Operated in 1844

The Lota field is 280 miles, south, as the crow flies from Valparaiso or a little further than Pittsburgh is removed from Philadelphia. It lies near the city of Conception, so much at the water's edge that much of the coal extracted, if not all, comes from under the sea. The volatile matter in the coal runs from 34 to 41, the moisture from 3.6 to 4.7, the ash from 1 to 6.5, and the sulphur 0.2 to 4.8 per cent.



School Building at Caretta, McDowell County, W. Va.

This new building, which stands on property of the Consolidation Coal Co. and cost $80,000, provides space for modern equipment such as auditorium, gymnasium, manual training, and domestic science rooms.

discover the place where the gas was escaping. The body was hurled 500 ft. by the force of the explosion. He was 45 years old. A son, Thomas Golby, risked his life by going into the heading and carrying the body of his father out while a rescue crew pumped oxygen into the mine.

J. E. Kennedy, of the Kennedy-Van Sann Manufacturing & Engineering Co., New York, gave a lecture on Thursday night, March 18, to the members of the Engineers' Society of Northeastern Pennsylvania on "Pulverized Coal." The meeting was held in the auditorium of the Glen Alden Coal Co. building and was presided over by C. R. Seem, president of the society.

Judge Bailey, at Huntingdon, has decided to dismiss the temporary receivers for the Huntingdon & Broad Top Mountain Railroad & Coal Co., according to advices from Philadelphia, but will hold a further hearing on April 16, after which it is expected that action will be taken regarding the question of permanent receivers.

Secretary of Mines J. J. Walsh is expected to fix a date during the coming week for a new series of examinations for qualification of candidates as anthracite mine inspectors. The date probably will be during April. The recent examinations did not qualify men for appointment. There are seven vacancies, a larger number than has existed at one time in many years.

A loss of almost $75,000 was caused recently near Gordon, when fire destroyed the Coal Creek washery of the Hill View Coal Co. This washery was erected a few years ago and was operated at times during the recent strike, but has been shut down since the settlement.

William Lamont, of Bakerton, Cambria County, a member of the state board of mine inspectors, has announced that nineteen men passed the state examination. The tests were given in Pittsburgh. The successful candidates are Silas S. Hall, Connellsville; William G. Knepper, Philipsburg; John Ira Thomas, Johnstown; J. F. Robey, Uniontown; James D. Walker, Butler; D. W. Wilkinson, Uniontown; Thomas J. Lewis, Punxsutawney; W. L. McCoy, Pittsburgh; F. W. Howarth, Hillcoke; Thomas Anderson, Heilwood; Patrick S. Nairn, Johnstown; William B. Wardrop, Barnesboro; James L. Maise, Uniontown; Thomas A. Stevenson, Conemaugh; William J. McGreagor, Eldersville; William Phillips, Caddy; George Stenheiser, Punxsutawney; Patrick J. Buchanan, Ellsworth, and Alexander Jack, Lilly. Three vacancies exist at present, in the Crafton, Altoona and Philipsburg districts.

WEST VIRGINIA

Plans are being made by Charleston mining men to entertain the southern West Virginia and northeastern Kentucky chapter of the American Institute of Mining and Metallurgical Engineers in Charleston on May 6 and 7. The guests will include Samuel A. Taylor of Pittsburgh, Pa., president and Dr. Thomas T. Read, of New York City, assistant secretary of the national organization. Dr. Read was formerly director of the safety service of the U. S. Bureau of Mines. Probably 200 mining men will attend. A banquet on the night of May 7 at a Charleston Hotel will be one of the features. The chapter has a membership of 200. On the afternoon of the second day the mining men will visit the industrial plants of Charleston. The local committee of arrangements is composed of J. K. Anderson, president of the chapter; C. E. Krebs, secretary of the chapter, and Carl Scholz, vice-president and general manager of the Raleigh-Wyoming Coal Co.

Operators estimate that coal production in southern West Virginia has been curtailed 25 per cent since the anthracite strike ended.

The Colcord Coal Co., of Charleston, is installing equipment at its Montcoal mine, on the C. & O., in Raleigh County, to be completed May 1 at a cost of from $25,000 to $30,000. Screens and rotary dumps are being installed and the tipple is being remodeled. The company also is buying 50 new mine cars.

Affairs of the Otto Marmet Coal Co. were in the federal court of southern West Virginia in Charleston on March 24. Otto Remelin, manager of Raymond City; Charles Strebel and other officials are trying to again obtain possession of the mine at Raymond City, Putnam County. The property was purchased by J. C. McKinley, of Wheeling, whose affairs afterward went into bankruptcy. The company seeks to resume operation at the mine as soon as the legal status of affairs is straightened out. The original company, the Otto Marmet Coal & Mining Co., also is involved in the proceedings.

William N. Cummins, general manager of the Red Jacket Consolidated Coal & Coke Co., reports that the company has completed the reconstruction of its No. 5 tipple. The improvements include a new set of modern shaker screens, picking tables, loading booms and refuse conveyors. At the No. 6 plant a new gathering motor and cutting machine have been installed.

A. J. Thompson will soon open for development a tract of coal land on the Durbin Branch of the Western Maryland Ry. at what was formerly Montes, near Elkins. Tests disclose the presence of a seam of Sewell coal. Development work will be started at an early date under the direction of Orin Kelly, who has been making the tests. It is stated that approximately 250 men will be employed once the new mine is in operation.

Increased profit for 1925 was reported by the American Coal Co., whose annual statement shows a net earning of $433,256, as against $244,001 for 1924. This is equal, after federal taxes, depreciation, depletion, etc., to $8.73 a share earned on outstanding 49,598 shares of $25 par capital stock. It was $4.91 a share in 1924.

In its report for 1925 the **Island Creek Coal Co.** shows a net profit of $2,210,949, after charges and taxes, equivalent, after preferred dividends, to $16.09 per share (par $1) earned on 118,801 shares of common stock. In 1924 the figures were $2,426,569, or $17.91 per share. The net income from coal and other operations was $3,736,620. Administrative and general expenses, miscellaneous interest, depreciation and depletion and federal taxes totaled $1,525,671. Total assets, including cash, $833,117; accounts and notes receivable, $1,683,886, and coal inventory, $73,759, were $22,727,820. Total liabilities were $15,990,163.

CANADA

Coal production of British Columbia in the first two months of the current year totaled only 350,025 gross tons, as compared with 404,467 during the corresponding period of 1925. The falling off has been chiefly in the Vancouver Island mines, which produced only 194,192 tons, as compared with 249,226 tons in the first two months of 1925. The decreased production is due to extraordinarily mild winter. C. E. Villiers, general manager for Canadian Collieries (Dunsmuir), Ltd., says the effect has been particularly noticeable at the Extension colliery, which depends on local demand. The Cumberland collieries, which have an extensive and regular bunkering trade, are not feeling the depression to the same extent.

Among the Coal Men

Whitefoord R. Cole, newly elected president of the Louisville & Nashville R.R., of Nashville, Tenn., also is a coal man, being connected with mines in the west Kentucky field and at one time was financially active in the affairs of the Dealers Fuel Co., of Nashville, which had an office in St. Louis. **James B. Hill** was elected president of the Nashville, Chattanooga & St. Louis Ry., to fill the vacancy created by the elevation of Whitefoord R. Cole to the presidency of the Louisville & Nashville. Mr. Cole became the head of the Louisville & Nashville following the death of W. L. Mapother. Mr. Hill was assistant to the president of the Nashville, Chattanooga & St. Louis. He began as a clerk.

E. L. May, well known during the past few years on account of his connections with the Levy enterprises of Chicago, is now in the sales department of the Lumaghi Coal Co., of St. Louis, Mo.

Tom Mackie has been elected a director of the Central Coal & Coke Co., Kansas City, Mo., to succeed J. N. Penrod, who died last September. Mr. Penrod's place on the executive committee of the company was taken by Harry T. Abernathy, another director.

M. C. Allen, who formerly owned the store at Middle Fork, Kanawha County, W. Va., has leased the mine of the Middle Fork Block Coal Co. at Middle Fork.

J. J. Tierney, son of the late Col. L. E. Tierney, has been made manager of the Eureka Coal & Coke Co. at Eckman, W. Va., and of the Lynchburg Coal & Coke Co. at Kyle, in McDowell County,

F. R. Wood president of the Temple Fuel Co., of Trinidad, Colo., and Mayor of Trinidad as well as president of the Colorado & New Mexico Coal Operators Association and formerly State Senator, will enter the race in the primary election for the governorship of Colorado.

Vernon G. Leach, an expert on combustion, who formerly was with the Nason Coal Co., is now connected with the Peabody Coal Co., Chicago. He will devote his entire time to the promotion of power-plant economy.

Thomas Kennedy, international secretary-treasurer of the United Mine Workers, has been made a member of the tri-district executive board in the Pennsylvania anthracite field with voice and vote. The action was taken at a recent meeting of the board.

The duties of the position of general superintendent of W. J. Rainey, Inc., vacated recently by the resignation of John Sincock, are being temporarily cared for by **Robert Woods, Jr.,** assistant general superintendent, Uniontown, Pa., and **J. R. Maust,** New York, N. Y., general purchasing agent, who is spending his time in Uniontown at present. No permanent appointment has yet been made.

David Hannah

David Hannah recently was elected president of the South Wales Institute of Engineers, of which he is one of the oldest members, having joined 42 years ago when a student. Born at Mynyddislwyn in 1855, he has been active throughout his career in the South Wales coal field, where he is one of the leading mining engineers. He received his early training with the Powell Duffryn Colliery Co., later becoming acting manager of the Ocean Coal Co. In 1889 he was appointed assistant manager of D. Davis & Sons' Ferndale Collieries, and a year later general manager of all that company's plants at Ferndale and Tylorstown, a position that he retained until his retirement a few years ago. Mr. Hannah is now chairman of the Welsh Navigation Steam Coal Co., Ltd., and a director of D. Davis & Sons, Ltd., and Locket's Merthyr Collieries, Ltd. He also is a member of the South Wales Coal Conciliation Board.

Traffic News

More Ohio Interests Ask Hearing In Lake Rate Case

The Tristate Coal Stripping Association, the Wheeling & Lake Erie Ry., the Ohio Public Utilities Commission, the Attorney General of Ohio and the Eastern Ohio Coal Operators' Association filed petitions with the Interstate Commerce Commission March 23 urging a rehearing in the lake cargo rate case. The eastern Ohio operators' petition said the situation "has seriously injured and impaired the business and social life of the complaining district and caused widespread suffering and distress."

The Ohio Attorney General and Utilities Commission declared the tonnage of coal shipped to lake ports for transshipment had continually decreased from Ohio districts and had correspondingly increased from the Kentucky and West Virginia districts.

In Ohio, it said, thousands of miners were reported out of work, enormous investments were imperilled, millions of dollars had ceased to flow through the usual channels of trade, the commercial life of mining communities, where not already ruined, was stagnant, many operators had become bankrupt and others were "desperately endeavoring to avert that fate.

"Relief from the excessive rates charged on lake coal from the Ohio districts," the petition added, "must be had; otherwise the coal industry, which for many years has been one of Ohio's chief assets, will deteriorate into a comparatively insignificant and unprofitable business enterprise, while the Southern fields will continue to expand."

The eastern Ohio operators presented figures to show that miners' wages in Ohio had decreased from $70,994,928 in 1923 to $31,500,000 last year.

I. C. C. Studies Hard-Coal Rates To Upper New York

A round-table discussion was held by the Interstate Commerce Commission March 16 with representatives of carriers which are proposing readjustments in freight rates on anthracite coal from Pennsylvania to northern New York territory, which generally would result in slight increases, and representatives of communities and other interests opposing the changes. No agreement was reached. As the new schedules are proposed to become effective April 1, the Commission must decide before that date whether it will suspend the new tariffs pending further investigation or permit them to become operative and take up the matter subsequently in the form of complaints.

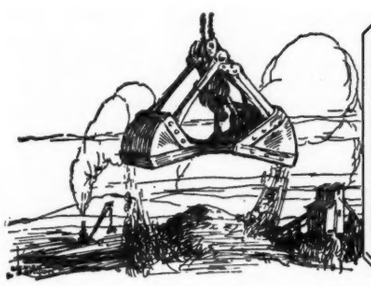
Complain of Colorado Rates

The Colorado and New Mexico Coal Operators Association has filed with the Colorado Public Utilities Commission a complaint charging Colorado railroads with discriminatory freight rates on coal from the northern Colorado fields on the Rock Island railroad in Colorado west of Limon. The Santa Fe, Burlington, Rock Island, Colorado & Southern, Union Pacific and Denver & Rio Grande Western were the roads named as defendants in the complaint.

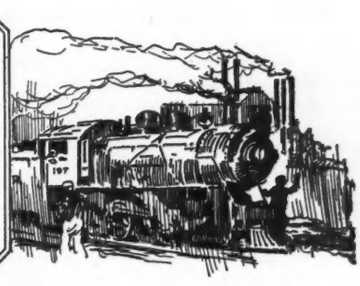
Ratify New Central Coke Rate

The New York Public Service Commission has approved a new rate of the New York Central (East) on coke, coke breeze and coke dust, from Troy to stations from Ogdensburg to Rouses Point inclusive, on the Rutland R.R. of $3.20 per net ton, effective April 13, 1926. No joint rate heretofore in effect.

The Pennsylvania R.R. last week asked the Interstate Commerce Commission to deny the petition of the New England Traffic League for a further hearing in the case involving emergency rates on soft coal from West Virginia mines to Northeastern states, which expire April 30. The road's representatives declared the present temporary rates, placed in effect during the mine suspension, were too low and should not be made permanent.



Production And the Market



Market Conditions Colorless as Coal Year Ends; Bituminous Output Declines

Nothing sensational or startling marked the passing of the coal year 1925-26 in either the anthracite or the bituminous markets of the country. Here and there, as on the Missouri River, for example, a brief weather flurry brought a final burst of activity to the domestic trade. Such flurries, however, were outnumbered by the slumps induced by a climbing mercury in other parts of the country. For the most part, the past week revealed merely the accumulation or the intensification of the effects of factors at work for some time.

Bituminous production, which showed an unexpected and still unexplained reversal of form the second week in March, again hit the downgrade during the week ended March 20. Output that week, according to the Bureau of Mines, was 10,273,000 net tons, a decline of 417,000 tons. Production, however, is still ahead of demand. Every mining field has its quota of "no bills" and distress tonnage has its depressing influence upon the movement at many eastern terminals.

Spot prices, on the whole, weakened—particularly in the East and upon eastern and southern coals in the markets of the Middle West. *Coal Age* Index of spot bituminous prices on March 29 stood at 163 and the corresponding price was $1.98. This was a drop of four points and 4c. when compared with March 22. Illinois and Indiana quotations were well maintained. Kentucky and West Virginia prices generally were softer and pool quotations at the Atlantic seaboard again declined.

Outlook for New Year Perplexing

Speculation as to the course the new year will take naturally holds the center of discussion, but no clear course of action has been mapped out. Those producers in union fields who have not lined up non-union connections are resigned to further suspensions of operations until such time as a modification of the Jacksonville scale can be effected. The uncertainty as to when that change will come underlies the deep pessimism in the Pittsburgh district and in the southern Ohio field.

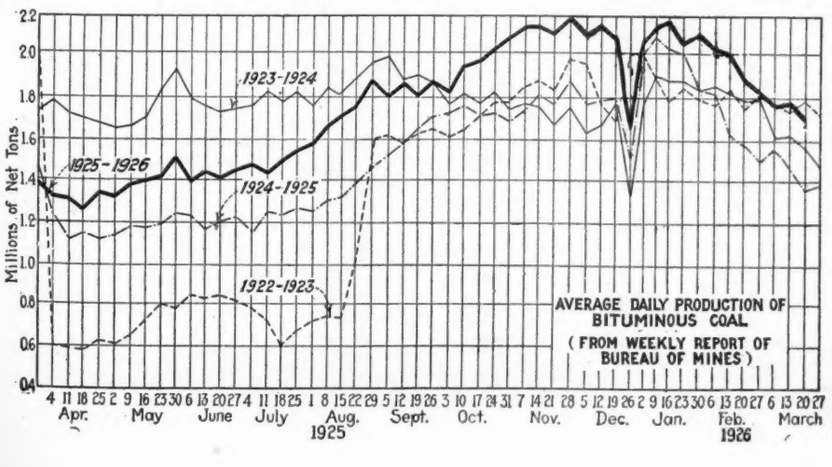
Contracting still is backward. Nevertheless, it is probable that more activity in this connection is being conducted under cover than current reports would indicate. There are certain well-established connections involving the annual movement of large tonnages which may be counted upon to continue undisturbed. At the same time it is recognized that the existing conditions offer little incentive to the buyer to contract—especially if he represents an industry which can afford to gamble with its fuel supply.

Anthracite Output Heavy

Anthracite production continues at a high rate. There are signs, however, that the most pressing demands of the consumer have been met. Company operators are starting to store some of their steam coal output and independents find increasing sales resistance to the movement of No. 1 buckwheat. Even the retail buyers are more discriminating in their purchase of the high-dollar independent domestic.

As forecast in *Coal Age* six weeks ago, it now appears to be well settled that there will be no spring reduction in mine prices of the large sizes. Whether the prices established in February will be used as a basis upon which to build advances during the spring and summer months is a question now troubling some people. Upon this point there has been no official announcement or comment.

The Connellsville coke trade has settled into its regular groove.



Estimates of Production

(Net Tons)

	1925	1926
BITUMINOUS		
March 6	9,384,000	10,460,000
March 13 (a)	8,641,000	10,690,000
March 20 (b)	8,283,000	10,273,000
Daily average	1,381,000	1,712,000
Coal yr. to date (c)	459,814,000	526,015,000
Daily av. to date	1,545,000	1,763,000
ANTHRACITE		
March 6	1,655,000	1,789,000
March 13	1,656,000	1,966,000
March 20	1,513,000	1,963,000
Coal yr. to date (c)	83,987,000	48,451,000
BEEHIVE COKE		
March 13 (a)	243,000	263,000
March 20 (b)	226,000	263,000
Cal. yr. to date (c)	2,895,000	3,573,000

(a) Revised since last report. (b) Subject to revision. (c) Adjusted to equalize number of days in the two years.

Middle West Looks to Contracts

The question of steam-coal contracts is the paramount one in the markets of the Middle West at the present time. Producers who still are trying to market their own coal are fighting hard against non-union competition. Some high-grade southern Illinois slack can be had on contract as low as $1.75, and other screenings may go at $1.50 or even $1.25. Railroads are inviting tenders; they probably will be able to buy southern Illinois mine-run at $2.25@$2.50 and Indiana coal at $2@$2.25. Few contracts have actually been closed.

Domestic demand is slow. Interest centers upon the new price announcements to be made this week. Reductions in the Franklin County basis are forecast, with a sliding scale throughout the summer months—a replica of the old anthracite summer discount system. West Virginia and Kentucky shippers are seeking retail storage orders on block at $2@$2.75. Smokeless lump and egg are offered to middlemen as low as $2.50.

More mines in Illinois and Indiana are closing down. The combination of warm weather, non-union competition and the normal spring slump in demand is proving too much for the average producer, who is beset with "no bills" on everything but steam coal. In southern Illinois, operations working are getting two and three days a week. Duquoin and Jackson County are in worse shape; only the strip pits have an even break. Mt. Olive is moving little coal. There has been no change for the better in the Standard district. The St. Louis local market is colorless.

Kentucky Waits for Lake Trade

Weather conditions since the middle of March have robbed domestic demand of life in the Kentucky fields. Producers, therefore, are finding it harder to move prepared sizes and prices in the eastern section of the state have broken. No real revival in demand is expected before the lake shipping season is well under way. Steam business, too, is less active, notwithstanding the fact that the industrial outlook is good. Many purchasing agents are holding to their determination to play the open market instead of renewing expiring contracts.

Eastern Kentucky block is to be had at $1.75@$2.25, with only the best known coals commanding up to $2.50. Two-inch lump, egg and nut are quoted at $1.75@$2, with some sales at $1.60. Mine-run is $1.25@$1.60; screenings, 90c.@$1.10. The prices in the western Kentucky field, except on lump and screenings, were unchanged last week. Lump advanced 10c. and a dime was added to the maximum price on spot screenings.

Hand-to-mouth buying by both retail and industrial consumers has resulted in part-time operations at the docks at the Head of the Lakes. Mild weather has cut household consumption of fuel to such an extent that retailers fear they

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F.O.B. Mines

Low-Volatile, Eastern	Market Quoted	Mar. 30 1925	Mar. 15 1926	Mar. 22 1926	Mar. 29 1926†
Smokeless lump	Columbus	$3.10	$3.85	$3.35	*$3.00@$3.25*
Smokeless mine run	Columbus	1.90	2.10	2.10	*1.85@ 2.20*
Smokeless screenings	Columbus	1.20	1.15	1.15	1.00@ 1.35
Smokeless lump	Chicago	2.85	3.10	3.10	*2.50@ 2.75*
Smokeless mine run	Chicago	1.75	1.95	1.95	*1.75@ 2.00*
Smokeless lump	Cincinnati	2.85	3.60	3.25	*2.50@ 3.00*
Smokeless mine run	Cincinnati	1.85	2.25	2.25	*2.00@ 2.25*
Smokeless screenings	Cincinnati	1.50	1.35	1.35	1.25@ 1.50
*Smokeless mine run	Boston	4.35	4.45	4.40	*4.15@ 4.35*
Clearfield mine run	Boston	1.95	2.05	2.05	*1.80@ 2.10*
Cambria mine run	Boston	2.30	2.35	2.30	*2.00@ 2.35*
Somerset mine run	Boston	2.10	2.15	2.10	*1.85@ 2.20*
Pool 1 (Navy Standard)	New York	2.65	2.80	2.85	*2.60@ 2.95*
Pool 1 (Navy Standard)	Philadelphia	2.65	2.80	2.80	2.65@ 3.00
Pool 1 (Navy Standard)	Baltimore	2.10	2.10	2.10	*2.00@ 2.10*
Pool 9 (Super. Low Vol.)	New York	2.05	2.25	2.35	*2.15@ 2.50*
Pool 9 (Super. Low Vol.)	Philadelphia	2.00	2.35	2.35	2.20@ 2.50
Pool 9 (Super. Low Vol.)	Baltimore	1.85	2.05	2.00	*1.85@ 1.95*
Pool 10 (H.Gr.Low Vol.)	New York	1.80	1.95	1.95	1.80@ 2.10
Pool 10 (H.Gr.Low Vol.)	Philadelphia	1.65	2.05	2.05	1.90@ 2.25
Pool 10 (H.Gr.Low Vol.)	Baltimore	1.75	1.80	1.80	*1.70@ 1.80*
Pool 11 (Low Vol.)	New York	1.55	1.75	1.70	1.55@ 1.90
Pool 11 (Low Vol.)	Philadelphia	1.55	1.80	1.80	1.75@ 1.85
Pool 11 (Low Vol.)	Baltimore	1.50	1.65	1.65	*1.60@ 1.65*
High-Volatile, Eastern					
Pool 54-64 (Gas and St.)	New York	1.50	1.50	1.50	*1.35@ 1.60*
Pool 54-64 (Gas and St.)	Philadelphia	1.45	1.45	1.45	1.35@ 1.55
Pool 54-64 (Gas and St.)	Baltimore	1.70	1.55	1.35	*1.30@ 1.35*
Pittsburgh sc'd gas	Pittsburgh	2.40	2.45	2.45	2.40@ 2.50
Pittsburgh gas mine run	Pittsburgh	2.00	2.05	2.05	2.00@ 2.15
Pittsburgh mine run (St.)	Pittsburgh	1.80	2.00	2.00	2.00
Pittsburgh slack (Gas)	Pittsburgh	1.35	1.45	1.45	1.40@ 1.50
Kanawha lump	Columbus	2.10	2.05	2.10	1.85@ 2.35
Kanawha mine run	Columbus	1.50	1.55	1.55	1.40@ 1.70
Kanawha screenings	Columbus	.95	.70	.85	.75@ .95
W. Va. lump	Cincinnati	2.00	2.15	2.05	*1.75@ 2.00*
W. Va. gas mine run	Cincinnati	1.35	1.50	1.50	*1.30@ 1.50*
W. Va. steam mine run	Cincinnati	1.25	1.35	1.35	1.25@ 1.50
W. Va. screenings	Cincinnati	1.00	1.00	.85	.75@ 1.00
Hocking lump	Columbus	2.25	2.50	2.50	*2.25@ 2.50*
Hocking mine run	Columbus	1.45	1.50	1.50	1.35@ 1.70
Hocking screenings	Columbus	1.15	1.05	1.05	1.00@ 1.15
Pitts. No. 8 lump	Cleveland	2.25	2.25	2.25	1.90@ 2.65
Pitts. No. 8 mine run	Cleveland	1.75	1.85	1.85	1.85@ 1.90
Pitts. No. 8 screenings	Cleveland	1.40	1.35	1.35	**1.35@ 1.45**

Midwest	Market Quoted	Mar. 30 1925	Mar. 15 1926	Mar. 22 1926	Mar. 29 1926†
Franklin, Ill lump	Chicago	$2.60	$3.00	$3.00	$3.00
Franklin, Ill. mine run	Chicago	2.35	2.40	2.40	2.35@ 2.50
Franklin, Ill. screenings	Chicago	1.95	1.85	1.85	1.75@ 2.10
Central, Ill. lump	Chicago	2.35	2.60	2.60	*2.25@ 2.50*
Central, Ill. mine run	Chicago	1.95	2.10	2.10	2.00@ 2.25
Central, Ill. screenings	Chicago	1.90	1.40	1.40	1.35@ 1.50
Ind. 4th Vein lump	Chicago	2.60	2.75	2.75	2.50@ 3.00
Ind. 4th Vein mine run	Chicago	2.10	2.20	2.20	*2.10@ 2.25*
Ind. 4th Vein screenings	Chicago	1.95	1.70	1.70	1.65@ 1.75
Ind. 5th Vein lump	Chicago	2.10	2.15	2.15	2.00@ 2.35
Ind. 5th Vein mine run	Chicago	1.95	1.95	1.95	1.85@ 2.10
Ind. 5th Vein screenings	Chicago	1.70	1.30	1.30	1.25@ 1.35
Mt. Olive lump	St. Louis	2.85	2.75	2.75	2.75
Mt. Olive mine run	St. Louis	2.35	2.15	2.15	2.15
Mt. Olive screenings	St. Louis	1.75	1.40	1.40	1.40
Standard lump	St. Louis	2.35	2.50	2.50	2.50
Standard mine run	St. Louis	1.80	1.80	1.80	1.75@ 1.85
Standard screenings	St. Louis	1.60	1.15	1.15	1.15@ 1.20
West Ky. block	Louisville	1.85	1.85	1.85	1.75@ 2.00
West Ky. mine run	Louisville	1.35	1.35	1.30	1.15@ 1.50
West Ky. screenings	Louisville	1.25	.95	.95	.85@ 1.10
West Ky. block	Chicago	1.85	1.75	1.75	1.65@ 1.85
West Ky. mine run	Chicago	1.30	1.15	1.15	.80@ 1.50
South and Southwest					
Big Seam lump	Birmingham	2.35	2.35	2.35	*1.75@ 2.25*
Big Seam mine run	Birmingham	1.75	1.75	1.75	**1.75@ 2.25**
Big Seam (washed)	Birmingham	1.85	2.10	2.10	**2.00@ 2.50**
S. E. Ky. block	Chicago	2.10	2.60	2.60	*2.00@ 2.75*
S. E. Ky. mine run	Chicago	1.35	1.65	1.65	1.50@ 1.85
S. E. Ky. block	Louisville	2.10	2.35	2.35	*1.75@ 2.25*
S. E. Ky. mine run	Louisville	1.35	1.55	1.55	*1.25@ 1.60*
S. E. Ky. screenings	Louisville	1.05	1.00	1.00	.90@ 1.10
S. E. Ky. block	Cincinnati	2.10	2.25	2.25	*2.00@ 2.25*
S. E. Ky. mine run	Cincinnati	1.30	1.30	1.50	1.25@ 1.75
S. E. Ky. screenings	Cincinnati	1.00	1.00	.90	**.75@ 1.10**
Kansas lump	Kansas City	4.25	4.35	4.35	4.25@ 4.50
Kansas mine run	Kansas City	2.85	2.75	2.85	2.75@ 3.00
Kansas screenings	Kansas City	2.75	2.40	2.50	2.50

* Gross tons, f.o.b. vessel, Hampton Roads.
† Advances over previous week shown in **heavy type**; declines in *italics*.

Current Quotations—Spot Prices, Anthracite—Gross Tons, F.O.B. Mines

	Market Quoted	Freight Rates	Mar. 30, 1925 Independent	Mar. 30, 1925 Company	Mar. 22, 1926 Independent	Mar. 22, 1926 Company	Mar. 29, 1926† Independent	Mar. 29, 1926† Company
Broken	New York	$2.34	.....	$8.00@$8.50	.....	$8.25@$9.25	.....	$8.25@$9.25
Broken	Philadelphia	2.39	.....	9.15	$9.00@12.50	9.00@ 9.25	$9.00@12.50	9.00@ 9.25
Egg	New York	2.34	$8.25@$8.50	8.25@ 8.50	10.25@11.25	8.75@ 9.25	*10.25@11.00*	8.75@ 9.25
Egg	Philadelphia	2.39	8.45@ 8.50	8.30@ 8.50	9.25@12.50	9.15@ 9.25	9.25@12.50	9.15@ 9.25
Egg	Chicago*	5.06	8.17@ 8.40	8.08	.....	8.13	.....	8.13
Stove	New York	2.34	8.25@ 8.75	8.50@ 8.90	10.50@11.50	9.25@ 9.50	*10.50@11.00*	9.25@ 9.50
Stove	Philadelphia	2.39	8.85@ 8.90	8.75@ 8.90	9.60@12.50	9.35@ 9.50	9.60@12.50	9.35@ 9.50
Stove	Chicago*	5.06	8.80@ 9.00	8.53@ 8.65	.....	8.33@ 8.58	.....	8.33@ 8.58
Chestnut	New York	2.34	8.25@ 8.75	8.25@ 8.50	10.50@11.50	8.75@ 9.15	*10.25@11.00*	8.75@ 9.15
Chestnut	Philadelphia	2.39	8.45@ 8.50	8.40@ 8.50	9.25@12.50	9.00@ 9.15	9.25@12.50	9.00@ 9.15
Chestnut	Chicago*	5.06	8.61@ 9.00	8.40@ 8.41	.....	8.33@ 8.53	.....	8.33@ 8.53
Pea	New York	2.22	4.25@ 5.00	5.00@ 5.50	7.50@ 8.25	6.00@ 6.35	*6.00@ 7.50*	6.00@ 6.35
Pea	Philadelphia	2.14	5.00@ 5.30	5.25@ 5.30	6.50@ 7.50	6.00@ 6.50	6.50@ 7.50	6.00@ 6.50
Pea	Chicago*	4.79	5.36@ 5.75	5.36@ 5.95	.....	5.65@ 5.80	.....	5.65@ 5.80
Buckwheat No. 1	New York	2.22	2.00@ 2.75	2.50@ 3.00	2.75@ 3.25	3.00@ 3.50	*2.50@ 3.00*	3.00@ 3.50
Buckwheat No. 1	Philadelphia	2.14	2.50	2.50	3.00@ 3.50	3.00	3.00@ 3.50	3.00
Rice	New York	2.22	1.90@ 2.15	2.00	1.85@ 2.25	2.00@ 2.25	1.85@ 2.25	2.00@ 2.25
Rice	Philadelphia	2.14	2.00	2.00	2.25	2.25	2.25	2.25
Barley	New York	2.22	1.35@ 1.50	1.50	1.50@ 1.75	1.60@ 1.75	*1.30@ 1.65*	1.60@ 1.75
Barley	Philadelphia	2.14	1.50	1.50	1.75	1.75	1.75	1.75
Birdseye	New York	2.22	1.40@ 1.60	1.60	1.40@ 1.60	2.00	1.40@ 1.60	2.00

*Net tons, f.o.b. mines. †Advances over previous week shown in **heavy type**; declines in *italics*.

will be overstocked. Industrial plants see no occasion for worry with ample reserves on the docks, railroad transportation good and the opening of navigation close at hand.

Dock Smokeless Again Slumps

Prepared sizes of smokeless coals were again the only sufferers in price. Lump, egg and nut were officially cut to $7—a reduction of $1 since the middle of March. The end of the anthracite strike and all-rail movement of hard coal to the Twin Cities are advanced in explanation of the weakness afflicting the smokeless list. In the local trade at Duluth and Superior, however, smokeless is still welcome because of the price differential under anthracite. Coke and briquets also are holding their own.

A rising mercury has slowed down demand for all grades of fuel in the Milwaukee market. Anthracite is coming in more freely; no spring reductions in prices, however, will be made. Retail prices at the present time for chute or curb delivery are: Stove, $16.80; nut, $16.65; pea, $14.25; buckwheat, $11.

A cold wave brought a slight flurry of activity to the Southwest trade last week, depleting retail stocks so much that replenishment orders were placed with the shippers. These orders, however, were not heavy enough to take a very noticeable bite out of the surplus of "no bills" which have been clogging Kansas mine tracks for several weeks and did not revive the moribund Oklahoma and Arkansas situation.

Colorado domestic business is still in a demoralized state. Demand is extremely weak and the market is glutted with unsold coal. Retailers are buying only for immediate necessities, hoping for further reductions in storage coal prices. The only size for which there is an active demand in Utah is slack and that demand is due primarily to curtailed operations at the mines. Business on the whole is subnormal.

Smokeless Given Another Blow

Smokeless prices have been given another jolt in the readjustment process in progress at the Cincinnati market. Egg and lump are weak at $2.50@$3. Mine-run, which had been steady at $2.25, now is offered at $2@$2.25. The campaign to bolster up slack prices appears to be making little headway. Retail prices at Cincinnati and throughout the Miami River valley have been cut from $8.50@$9.50 on lump to $7.50. Retail mine-run is down to $5.75@$6, which is the range also quoted on bituminous lump.

Traders have about abandoned hope that high-volatile coals can be moved via the price reduction route. Shrewd shoppers can buy some of the best West Virginia lump at $1.75@$2 and Kentucky at $2@$2.25. Egg is hard to sell at $1.50@$1.75. Mine-run, on the other hand, is steady. Slack has dropped back to 75c.@$1.10.

Shop talk centers around the lake business. One report, apparently well authenticated, says that a large Logan County group has sold its summer output at a $1.50 mine-run basis. Another report states that lake buyers, after a futile attempt to dragoon Kentucky shippers into a contract for slack and 2-in. coal at 80c., have offered 90c. for slack and $1.65 for 2-in. Movement through the Cincinnati gateways is within 300 cars of normal for this year and about 3,000 cars a week ahead of last year.

Ohio Also Looks to Lakes

With domestic trade out of the picture and industrial buying slow because big consumers are well stocked, Ohio producers are wondering what the lake trade will have in store. Outside of the mines with direct dock connections, Ohio expects a smaller share of the lake business than in earlier years because producers cannot meet the prices quoted on lake business in Kentucky and West Virginia. Lump at $1.60 cannot be matched by the Buckeye State.

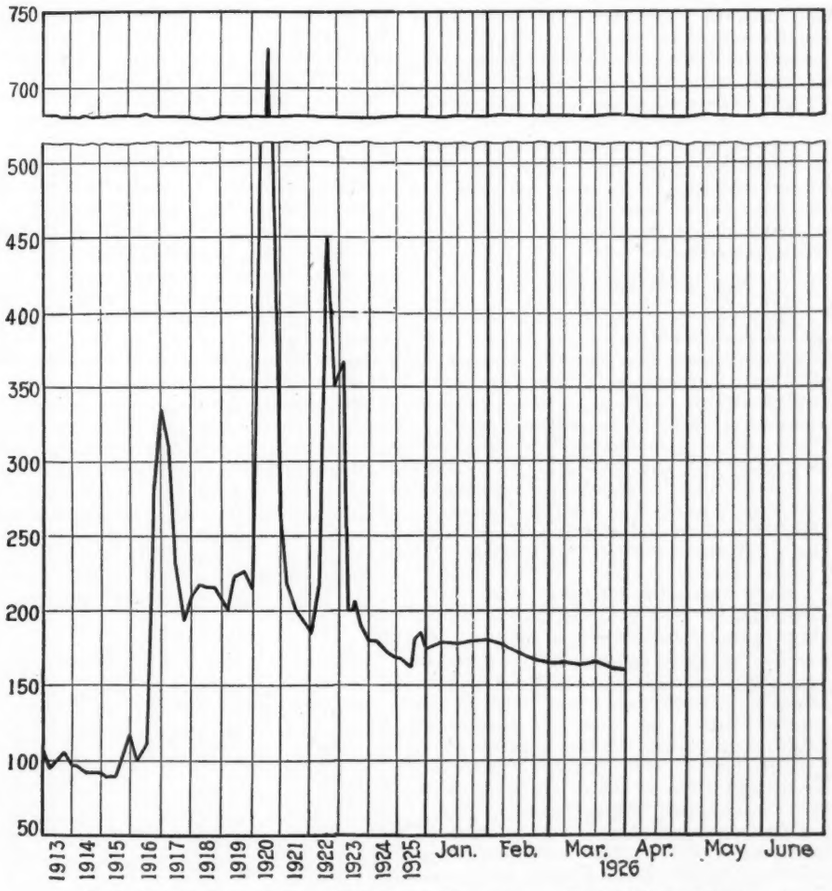
Retail dealers in central Ohio are more anxious to clean up stocks than to place fresh orders. Industrial plants are indifferent on the score of contract renewals. Railroads, however, have invited tenders, but little tonnage has been awarded. Southern Ohio production is still under 20 per cent of capacity. The No. 8 field produced approximately 247,000 tons, or 35 per cent of capacity, during the week ended March 20. Out of 120 mines in the field, only 16 are working full time and 63 operations have been down for a year or more.

Cleveland reports a steady but gradual slowing down in demand, particularly in prepared sizes. This has cut further into the tonnage of free slack and nut-and-slack available. Screenings prices were up 5@10c. last week. On the other hand, there still is considerable distress tonnage of the larger sizes to hold down quotations on mine shipments and sap consumer interest in the market.

"There Is No Joy in——"

The Pittsburgh district is stagnant. Independent operators are pegging along, working a few days a week to keep up on unexpired contracts. Many of these mines plan to close down as soon as these contracts have been completed as the prices offered on renewal make a shutdown the lesser of two evils. Prices show no real change because buyers will not pay more and operators feel they dare not sell for less. A number of Connellsville producers have been trying to break into the steam and gas coal markets, but their success has not been marked.

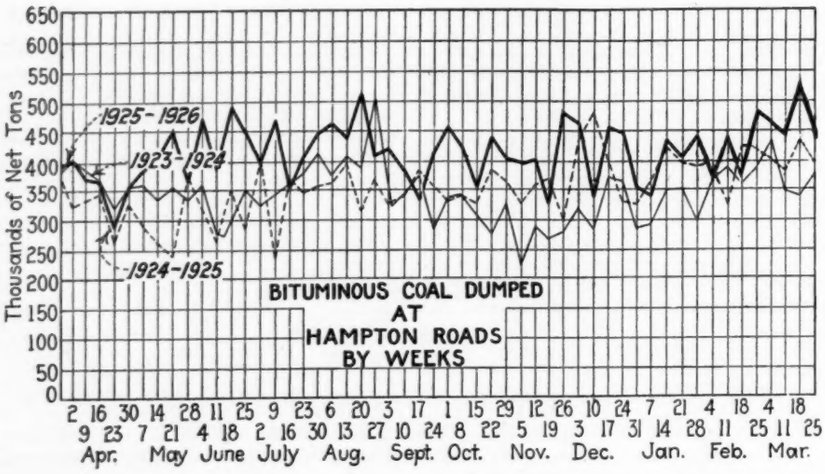
Central Pennsylvania production still is on the toboggan. Output the week ended March 20 was 15,572 cars, as



Coal Age Index of Spot Prices of Bituminous Coal F.O.B. Mines

	1926				1925	1924
	Mar. 29	Mar. 22	Mar. 15	Mar. 8	Mar. 30	Mar. 31
Index	163	167	168	167	161	173
Weighted average price	$1.98	$2.02	$2.03	$2.02	$1.95	$2.09

This diagram shows the relative, not the actual, prices on fourteen coals, representative of nearly 90 per cent of the bituminous output of the United States, weighted first with respect to the proportions each of slack, prepared and run-of-mine normally shipped, and second, with respect to the tonnage of each normally produced. The average thus obtained was compared with the average of the twelve months ended June, 1914, as 100, after the manner adopted in the report on "Prices of Coal and Coke: 1913-1918," published by the Geological Survey and the War Industries Board.



compared with 16,190 cars the week preceding. Only 118 mines are working full time. Railroads are buying up some of the distress coal in the district at bargain figures. Current quotations for shipment are: Pool 1, $2.50@$2.60; pool 71, $2.35@$2.45; pool 9, $2.10@$2.20; pool 10, $1.90@$2; pool 11, $1.70@$1.75; pool 18, $1.65.

Buffalo bituminous trade is a drab affair. Some contracts are in the making, but the prices bring no joy. Spot quotations are unchanged. Slack is the only grade for which there is a real demand. The announcement that there would be no spring reduction in anthracite prices and the possibility of advances later have caused an unfavorable sentimental reaction. Consumer demand for hard coal is slowing up at Toronto, but orders already booked and coming in will keep retail yards busy for some weeks to come.

New England Trade Dull

The New England steam coal market is dull, with no signs of early betterment discernible. Prices are sagging and coal is piling up at the mines and the southern loading piers. Contract customers are well supplied with fuel and spot buyers can find enough distress tonnage to keep them running. Navy Standard was available at $4.15 gross f.o.b. vessels at Norfolk last week. Nut-and-slack and straight slack have been offered at prices as low as any within recent years.

Navy Standard on cars at Boston and Providence was held at $5.75 at the last named point for inland delivery and under $6 at Boston. Open prices to regular customers for retail delivery in Boston is $8.50, but recent bids on the requirements of the Massachusetts state institutions show a fighting basis much lower. One proposal named a delivered price of $5.85 on New River at Charlestown State Prison.

Further reduction in the tonnage of distress coal in the New York bituminous market was effected last week. Some screened sizes in that category were offered at $3.50 alongside and some Kanawha splint at $3.50@$4 alongside. A Shipping Board inquiry for a small tonnage of standard pool 1 coal for bunkering brought a price of $5.78 t.i.b. Contracting for the new season is backward. As the distress tonnage melts, however, spot buying is slowly improving.

Micawber Comes to Philadelphia

In the Philadelphia bituminous market everybody is waiting for something to turn up—not sure what it will be and not at all certain that anything will happen to better the outlook. Tonnage moving in some cases may be satisfactory, but prices realized are not. Contracting is slow. The nearest many industrial consumers are coming to signing on the dotted line is to buy a car or two here and there as trial shipments. Spot prices are unchanged. Bunker trade is holding its own.

In the main, the situation in the Baltimore bituminous market is a duplication of that at New York and Philadelphia. Aside from large consumers such as the public utilities little interest is displayed in contract negotiations. Current spot prices are so near those named in contract tenders, that many plants see no incentive to sign up. Good coals which usually command around $1.85 have been sold as low as $1.50. One recent sale of a large block of steam tonnage was made at a price 20c. per ton under actual mining costs.

The promulgation of April prices on domestic coals in the Birmingham market has been followed by an active contract movement. In fact, some producers already are sold up for the spring and early summer months. The new price basis is as follows: Big Seam lump, $1.75@$2.25; Carbon Hill lump, $2.50; Cahaba lump, $3 50@$4; Black Creek lump, $3.50@$3.75; Corona lump, $2.75; Montevallo-Straven, $4.25; Montevallo-Dogwood, $4.50; Montevallo-Aldrich, $4.75. Egg prices are 25c. less; washed nut, 75c. under the lump quotations.

Better Alabama Coals Hold Up

The better grades of mine-run and washed coals are in fairly active demand. Spot buying of the lower grades is not brisk, but there are no surplus accumulations of tonnage. Spot prices have shown no material change. The St. Louis-San Francisco R.R. has broken the ice in railroad contracting by closing agreements for approximately the same tonnage as last year and at the same prices. Most of this coal will come from Walker County.

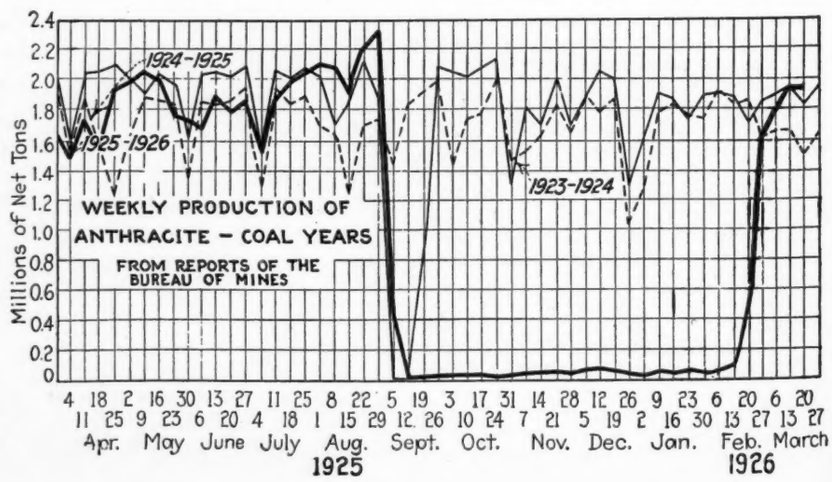
The market for egg and nut coke is not active. Spot quotations range from $5 to $5.50 at the ovens. A number of contracts have been made on foundry coke at $5.50@$6. Spot foundry coke also is in good demand at $6.50.

Assurance that there will be no spring reduction in anthracite mine prices has had a steadying effect upon the New York hard-coal market. But retailers have announced reductions in their prices to the household consumer and their ability to take care of his orders promptly. They are, however, urging that the householder take a combination of sizes. Chestnut coal still tops the market from the standpoint of present popularity, but stove is a close runner-up. Pea also is in good demand, and some householders are looking on No. 1 buckwheat with friendly eyes.

Weather Takes Toll in Philadelphia

Spring temperatures at Philadelphia last week were reflected in a sudden easing off in consumer demand for hard coal. This, however, did not slow up the rate of ordering from the mines, although there was more hesitancy in retail buying of high-dollar coal, and occasional hints that independent egg and stove were not particularly desired.

Steam sizes are coming from the mines faster than the market will absorb them. Producers without storage facilities are working hard to place their surplus production. Some independent contracts have been closed at $2.50 for No. 1 buckwheat, $2 for rice and $1.50 for barley. One of the largest company shippers has named contract prices of $2.75, $2 and $1.60 on those sizes. Certain buyers are reluc-



Car Loadings and Supply

	Cars Loaded — All Cars	Coal Cars
Week ended.....March 13, 1926....	967,411	188,834
Preceding week..March 6, 1926...	964,681	182,441
Week ended....March 14, 1925...	924,149	149,105

	Surplus Cars — All Cars	Coal Cars	Car Shortages — All Cars	Coal Cars
March 15, 1926	198,854	72,214	.....	.....
March 8, 1926	202,432	72,949	.....	.....
March 14, 1925	295,939	151,828	.....	.....

tant to pay these prices, particularly on No. 1 buckwheat.

Baltimore household consumer demand has weakened with a rising thermometer and the change is welcomed by the Baltimore dealers. Orders on hand, however, will eat up all the coal running to the yards in the city.

Furnace Contracts Closed?

Although no definite announcement has been made, it is understood that the bulk of the furnace coke needed for the second quarter by buyers who draw supplies from the Connellsville region has been closed at $3@$3.25. Some business was signed up at $3.50, mostly renewals. Spot furnace coke is held at $3.25, but inferior fuel can be had for less. Standard spot foundry coke is quotable at $4.50@$5. Some April orders have been placed at $4.75.

Coke production in the Connellsville and Lower Connellsville region the week ended March 20 totaled 190,010 tons, according to the Connellsville *Courier*. The furnace ovens produced 104,600 tons—an increase of 4,200 tons over the preceding week. Merchant oven output, 85,410 tons, was 3,180 tons less than during the week ended March 13.

Seeks Bids on 25,000 Tons

The U. S. Engineer's O ce, 140 Decatur Street, New Orleans, La., will receive bids until April 22 for 25,000 tons of bituminous coal at mine for shipment to various points on the Mississippi River below Vicksburg, Miss. Further information may be obtained upon application to Frank Michinard, 107 University Place, New Orleans, La.

February Exports Increase

United States bituminous exports in February surpassed those of the preceding months, but are well below the average for 1925, according to the Department of Commerce. The total quantity of bituminous shipped abroad during the month amounted to 1,013,158 gross tons, as compared with 993,386 tons in January.

Anthracite exports increased from 6,311 gross tons in January to 37,157 tons in February. Coke exports declined to 67,697 tons.

Exports by countries were as follows:

To	Anthracite, Gr. Tons	Bituminous, Gr. Tons	Coke, Gr. Tons
France	.....	1,256	300
Italy	.....	79,558	.....
Canada	37,061	685,586	65,061
Netherlands	.....	7,698	.....
Norway	.....	.....	300
British Honduras	.....	3	.....
Guatemala	.....	60	2
Honduras	20	101	21
Nicaragua	.....	160	3
Panama	.....	42,199	.....
Salvador	3	3	11
Mexico	68	12,321	302
Bermuda	.....	4,435	.....
Trinidad and Tobago	.....	5,868	5
Other British West Indies	.....	3,447	10
Cuba	.....	63,324	1,626
Dominican Republic	.....	1,094	.....
Dutch West Indies	5	2,774	.....
French West Indies	.....	11,380	.....
Virgin Islands of U. S.	.....	10,310	.....
Argentina	.....	24,203	.....
Brazil	.....	39,647	.....
Colombia	.....	48	7
British Guiana	.....	2,152	.....
Uruguay	.....	6,599	.....
Venezuela	.....	.....	19
Egypt	.....	866	.....
Other French Africa	.....	8,066	.....
Total	37,157	1,013,158	67,697

Russian Shortage Continues

The fuel crisis is still very acute in Russia and is endangering industrial activity. The Supreme Economic Council has taken some special measures to overcome the difficulties. In the Donetz coal district a number of old shafts have been put into operation and new shafts are being dug with the assistance of German firms. Owing to the fact that large sums of capital are required for the exploitation of the coal deposits, ways and means of attracting foreign capital for mining purposes are being discussed.

Coal Bids for New York City Reveal Wide Range

Twenty companies submitted bids on 502,436 tons of anthracite and bituminous coal for the Department of Purchase of the City of New York on March 23. The opening of tenders revealed the following:

For furnishing and delivering 10,000 net tons of mine run bituminous coal to Rikers Island the prices submitted ranged from $4.13 to $4.28 per ton.

For 5,103 tons of No. 1 buckwheat coal above 59th Street, Manhattan, six bids received ranged from $4.81 to $6.28 per ton, while for 6,592 tons of the same kind of coal below 59th Street five bidders made tenders ranging from $4.84 to $6. For 7,760 tons of No. 2 buckwheat coal in Manhattan the prices submitted ranged from $4.44 to $5.20 per ton.

Prices submitted for supplying in Manhattan Borough various tonnages of broken, egg, stove and chestnut coals ranged from $11.99 to $12.59 for broken; $11.88 to $12.50 for egg; $12.49 to $13.22 for stove; $12.48 to $12.59 for chestnut, and $8.94 to $9.20 for pea coal, depending in all instances on delivery points.

In Brooklyn two bids—$4.84 and $5.22—were received for furnishing and delivering 1,673 tons of No. 1 buckwhat coal. For 15,000 tons of mixed coal—11,500 tons No. 2 buckheat and 3,500 tons soft coal—to the Kings County Hospital four bids received ranged from $4.38 to $4.94 per ton.

For furnishing and delivering to boats of the various city departments at various points 9,300 tons of mine-run soft coal there were four bids received ranging from $4.56 to $5.92 per ton. Five bids were received for furnishing and delivering 173,000 tons of No. 1 buckwheat coal in barge lots to various delivery points. These prices ranged from $4 to $4.66 per ton. For 45,600 tons of No. 3 buckwheat coal under the same conditions four bids received ranged from $3.54 to $3.98 per ton, and for supplying 28,500 tons of mine-run soft coal under the same provisions the prices ranged from $4.17 to $4.54.

Coal Produced in Colorado in 1924

(Exclusive of product of wagon mines)

County	Net Tons — Loaded at Mines for Shipment	Sold to Local Trade and Used by Employees	Used at Mines for Steam and Heat	Made Into Coke at Mines	Total Quantity	Value — Total	Value — Average per Ton	Number of Employees (a) — Underground — Miners (b)	Underground — All Others	Surface	Total	Average Number of Days Worked (a)	Average Tons per Man per Day
Archuleta, Jackson, Monroe and Pitkin	63,600	8,657	587	.....	72,844	$177,000	$2.43	45	12	18	75	174	5.58
Boulder	601,015	50,430	32,099	.....	683,544	1,807,000	2.64	584	240	111	935	167	4.37
Delta	58,414	28,911	.....	.....	87,325	251,000	2.87	67	14	14	95	145	6.33
Elbert	.....	2,342	117	.....	2,459	5,000	2.03	6	2	2	10	136	1.81
El Paso	202,800	149,551	11,590	.....	363,941	965,000	2.65	277	65	43	385	203	4.66
Fremont	607,434	77,522	13,344	.....	698,300	2,675,000	3.83	683	262	164	1,109	184	3.42
Garfield	14,048	11,972	400	.....	26,420	63,000	2.38	25	5	3	33	215	3.72
Gunnison	436,754	6,618	25,649	.....	469,021	1,518,000	3.24	395	143	142	680	148	4.64
Huerfano	1,956,870	18,635	15,236	.....	1,990,741	6,952,000	3.49	1,577	540	471	2,588	201	3.83
Jefferson	114,743	4,404	8,235	.....	127,382	268,000	2.10	85	40	19	144	215	4.12
La Plata	50,914	27,046	125	14,051	92,136	282,000	3.06	90	23	22	135	172	3.96
Las Animas	2,874,638	68,078	56,578	119,278	3,118,572	9,838,000	3.15	2,468	940	538	3,946	191	4.13
Mesa	110,118	25,271	100	.....	135,489	342,000	2.52	128	30	32	190	174	3.99
Moffat	.....	6,963	.....	.....	6,963	12,000	1.72	7	3	2	12	145	4.02
Montezuma	1,650	3,834	.....	.....	5,484	23,000	4.19	13	1	1	15	218	1.68
Rio Blanco	.....	3,186	2	.....	3,188	10,000	3.14	8	1	2	11	175	1.66
Routt	850,115	15,035	46,493	.....	911,643	3,116,000	3.42	673	257	222	1,152	70	11.28
Weld	1,569,421	53,084	26,141	.....	1,648,646	3,559,000	2.16	892	400	147	1,439	197	5.82
Totals	9,512,534	561,539	236,696	133,329	(c) 10,444,098	$31,863,000	$3.05	8,023	2,978	1,953	12,954	178	4.52

(a) Note that figures of men employed and days worked do not include mines that operated in 1923, but were idle the entire year 1924; they do include many mines operating for a short time only in 1924. The number of active mines of commercial size in Colorado was 236 in 1923 and 231 in 1924.
(b) Includes also loaders and shotfirers.
(c) Excludes refuse from washing. Statistics compiled by U. S. Bureau of Mines.

Foreign Market And Export News

Surplus Stocks of Coal Depress Welsh Market; Tyne Inquiries Increasing

London, England, March 16—The Welsh steam coal trade is still very unsettled. Colliery owners are well booked and arrears of delivery are heavy, but the tonnage position is very unsatisfactory. Stocks of coal have accumulated to such an extent that irregular operation of the pits has become the rule instead of the exception.

The collieries are anxious to obtain any prompt business that may be available and in some cases are cutting prices to secure quick shipment, though their order books are well filled and they are not really in a position to accept such bookings. In South Wales the difference between the cost of production and the selling price is now estimated at 3s. 3d. per ton, without reckoning any return on the capital invested in the mines.

The Egyptian State Rys. have invited tenders for 150,000 metric tons of Monmouthshire large coal for May and June delivery. The Palestine Rys. have ordered 32,000 tons of best Admiralty large, and the Portuguese Rys. 21,000 tons of steam smalls for delivery over three months.

The Newcastle market is dull, but there is an increased inquiry for forward business. Very much, however, depends upon the attitude of the government, the operators and the miners towards the coal report, which has now been published. Prices for the most part are steady, though in one or two cases they have been inclined to waver or fall slightly. There is little actual business to report aside from certain European gas works contracts.

Output by British collieries during the week ended March 13, according to a special cable to *Coal Age*, totaled 5,285,000 gross tons, the same as in the preceding week.

Belgian Market Less Active; Outlook Unfavorable

Hopes of an improvement in the industrial coal market in Belgium have not been realized, reports Brussels under date of March 18. The slight advance registered in prices in February has been maintained, but there is nothing in the present outlook to indicate that further increases are possible. Small coals are in the greatest demand. Coking smalls are readily salable at 85 @87 fr. Lean smalls for brick and lime kilns command 67@68 fr., and there is some talk of raising the price to 70 fr.

The domestic market is weak. Stocks on hand are increasing as consumer demand is tapering off.

Syndicate prices on coke are 125 fr. on Belgian and 120 fr. on German coke, but outsiders are selling coke at 110 fr.

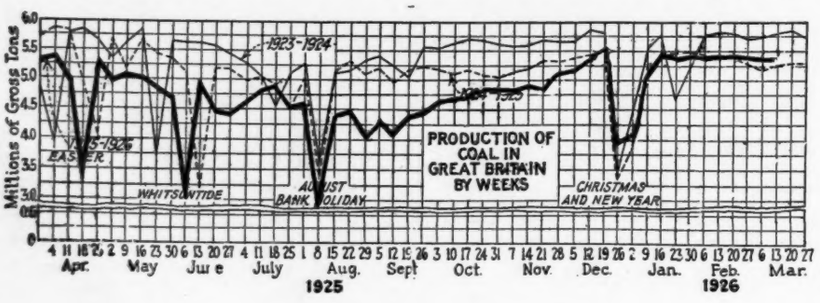
An agreement finally has been reached on first-quarter prices on coal for the Belgium State Rys. These prices, 84@88 fr., represent a uniform advance of 1 fr. per ton over November-December figures. The price on briquets, 100 fr., is an advance of 4 fr. The question of second-quarter prices is now under discussion. One order for 450,000 tons has been allocated, but the price has not been fixed. An order for 150,000 tons of briquets has been placed at 110 fr. The increase over first-quarter prices reflects the higher cost of pitch.

French Industrial Call Strong; Domestic Orders Decline

Paris, France, March 18.—The industrial demand for coal in France continues on a satisfactory basis. Further decline in the value of the franc in foreign exchange has had an adverse effect upon the rate of importation of coal from Great Britain, forcing a heavier load upon the productive capacity of the French collieries.

Buying of domestic coals is easier, but orders still are numerous enough to take care of the sized output from the French mines. Increases of 6@10 fr. in Belgian prices, due to fluctuations in the rate of exchange, also have helped the French operators. An agreement was made last week between French and Belgian interests fixing summer prices on fuel for the Parisian district, but the prices have been withheld.

The first arrivals of Polish coal have made a favorable impression although the appearance of the fuel is against a ready sale. This, however, is offset by the small degradation. The Polish coal is being sold at prices approximating those on French coals of like grade.



Export Clearances, Week Ended March 25, 1926

FROM HAMPTON ROADS

	Tons
For Nova Scotia:	
Nor. Str. Laly, for Halifax	2,055
For Egypt:	
Br. Str. City of Glasgow, for Port Said	1,007
For New Brunswick:	
Br. Schr. Burpee L. Tucker, for St. John	725
Swed. Str. Falco, for St. John	4,195
For Miquelon:	
Nor. Str. Facto, for St. Pierre	1,942
For Brazil:	
Ital. Str. Attualita, for Rio de Janeiro	8,013
Br. Str. Portloe, for Pernambuco	6,012
Br. Str. Antar, for Rio de Janeiro	9,123
For Trinidad:	
Nor. Str. Christian Krogh, for Port of Spain	2,591
For Jamaica:	
Swed. Str. John Lundwall, for Kingston	2,230
Amer. Str. Levisa, for Kingston	2,626
For Chile:	
Nor. Str. Toluma, for Bahia Blanca	3,849
For Italy:	
Fr. Str. Wesserling, for Genoa	6,768
For Cuba:	
Ital. Str. Valprato, for Havana	7,317
Nor. Str. Sydfold, for Manopla	501

FROM BALTIMORE

For Italy:	
Jap. Str. Toguka Maru, for Civitavecchia	7,191
Jug.-S. Str. Federiko Glavic, for Genoa	8,974
For Algeria:	
Ital. Str. Grovanna Florio, for Algiers	6,985
For Argentina:	
Br. Str. Graigwen, for Buenos Aires	5,496
For Venezuela:	
Ger. Str. Curslack, for Tascacas	1,031
For Cuba:	
Ital. Str. Valnoce, for Havana	6,027

FROM PHILADELPHIA

For Cuba:	
Br. Str. Blairadam, for Havana	———
Br. Str. Gen. Lukin, for Havana	———
Du. Str. Kralingen, for Gibara	———

Hampton Roads Coal Dumpings*

(In Gross Tons)

	Mar. 18	Mar. 25
N. & W. Piers, Lamberts Pt.: Tons dumped for week	190,426	152,916
Virginian Piers, Sewalls Pt.: Tons dumped for week	127,159	92,640
C. & O. Piers, Newport News: Tons dumped for week	167,546	144,390

* Data on cars on hand, tonnage on hand and tonnage waiting withheld due to shippers' protest.

Pier and Bunker Prices, Gross Tons

PIERS

	March 20	March 27†
Pool 1, New York	$5.50@$5.75	$5.50@$5.75
Pool 9, New York	5.15@ 5.35	*5.10@ 5.30*
Pool 10, New York	4.75@ 5.10	*4.75@ 5.00*
Pool 11, New York	4.50@ 4.75	4.50@ 4.75
Pool 9, Philadelphia	5.10@ 5.40	5.10@ 5.40
Pool 10, Philadelphia	4.95@ 5.15	4.95@ 5.15
Pool 11, Philadelphia	4.60@ 4.80	4.60@ 4.80
Pool 1, Hamp. Roads	4.50@ 4.60	*4.40@ 4.50*
Pool 2, Hamp. Roads	4.25@ 4.30	*4.20*
Pools 5-6-7, Hamp. Rds.	3.90@ 4.00	*3.90*

BUNKERS

Pool 1, New York	$5.75@$6.00	$5.75@$6.00
Pool 9, New York	5.40@ 5.60	*5.35@ 5.55*
Pool 10, New York	5.00@ 5.35	*5.00@ 5.25*
Pool 11, New York	4.75@ 5.00	4.75@ 5.00
Pool 9, Philadelphia	5.35@ 5.65	5.35@ 5.65
Pool 10, Philadelphia	5.20@ 5.40	5.20@ 5.40
Pool 11, Philadelphia	4.85@ 5.05	4.85@ 5.05
Pool 1, Hamp. Roads	4.60	*4.50*
Pool 2, Hamp. Roads	4.30	4.30
Pools 5-6-7, Hamp Rds.	4.10	*4.00*

Current Quotations, British Coal, f.o.b. Port, Gross Tons

Quotations by Cable to *Coal Age*

Cardiff:	March 20	March 27†
Admiralty, large	23s.6d.@24s.	**24s.6d.**
Steam smalls	12s.	**14s.**
Newcastle:		
Best steams	18s.	18s.
Best gas	20s.	*18s.@20s.*
Best bunkers	16s.	**16s.6d.**

† Advances over privious week shown in **heavy** type; declines in *italics*.

Coming Meetings

New England Coal Dealers' Association. Annual meeting, State Armory, Worcester, Mass., April 7 and 8. Secretary, E. I. Clark, 141 Milk St., Boston, Mass.

Canadian Retail Coal Association. Annual convention, King Edward Hotel, Toronto, Ont., Can., April 14 and 15. Secretary, B. A. Caspell, Brantford, Can.

American Welding Society. Annual convention, 29 West 39th St., New York City, April 21-23. Secretary, M. M. Kelly, 29 West 39th St., New York City.

California Retail Fuel Dealers Association. Thirteenth annual convention at Del Monte, Calif., April 22-24. Secretary, J. B. Muir, Oakland, Calif.

Mine Inspectors' Institute of America. Annual meeting, Seventh Avenue Hotel, Pittsburgh, Pa., May 11-13. Secretary, G. B. Butterfield, Hartford, Conn.

National Retail Coal Merchants' Association. Ninth annual convention, New Willard Hotel, Washington, D. C., May 17-19. Resident vice-president, Joseph E. O'Toole, Transportation Bldg., Washington, D. C.

Electric Power Club. Convention at The Homestead, Hot Springs, Va., May 24-27. Secretary, S. N. Clarkson, B. F. Keith Bldg., Cleveland, Ohio.

The American Mining Congress. Annual Exposition of Coal Mining Equipment, May 24-28, at Cincinnati, Ohio, in conjunction with the annual meeting of practical operating officials. Assistant secretary, E. R. Coombes, Washington, D. C.

International Geological Congress. The fourteenth congress will be held in Madrid, Spain, commencing May 24, 1926. From May 5 to 22 excursions of interest to the visiting delegates will be arranged. Information concerning the congress can be obtained from the secretary of the organizing committee, Enrique Dupuy de Lome, Plaza de los Mostenses, 2, Madrid, Spain.

Midwest Retail Coal Merchants Association. Annual meeting, May 25 and 26, at Kansas City, Mo. Secretary, James P. Andriano, St. Joseph, Mo.

Western Canada Fuel Association. Annual meeting at Winnipeg, Manitoba, Can., May 27 and 28. Secretary, W. H. Morrison, Winnipeg.

American Wholesale Coal Association. Annual meeting at Toledo, Ohio, June 7-9. Treasurer, R. B. Starek, Union Fuel Bldg., Chicago, Ill.

Association of Iron & Steel Electrical Engineers. Exposition and convention at Hotel Sherman, Chicago, Ill., June 7-10. Secretary, J. F. Kelly, 1007 Empire Bldg., Pittsburgh, Pa.

American Institute of Electrical Engineers. Annual convention, White Sulphur Springs, W. Va., June 21-25. Secretary, F. L. Hutchinson, 29 West 39th St., New York City.

American Society for Testing Materials. Convention at Haddon Hall, Atlantic City, N. J., June 21-25. Secretary, C. L. Warwick, 1315 Spruce St., Philadelphia, Pa.

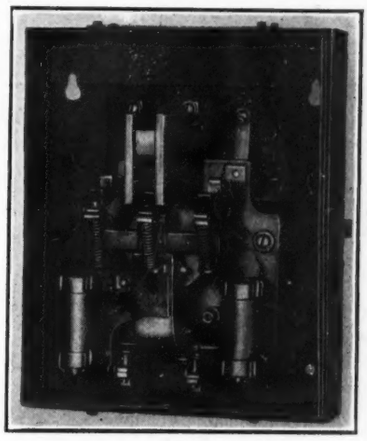
New Equipment

Across-the-Line Starters Made Easily Accessible

In the accompanying illustration may be seen one of the two new across-the-line starters which have been recently developed and are now being placed on the market by the Westinghouse Electric & Mfg. Co. of East Pittsburgh, Pa. These starters are of the reversing and non-reversing types respectively. They are of compact design and have been made easily accessible for installation and wiring. Two slotted hexagonal screws firmly hold the starter unit in place in a sheet steel cabinet. Thus the starter may be removed as a unit by merely withdrawing these screws with an ordinary screw driver, leaving all the room inside the cabinet free for attaching conduit bushings and drawing in the leads.

This starter, consisting of a 3-pole contactor with electrical interlock, is completely inclosed and is operated from a push button station that may be located at any convenient point. It thus provides safe control and eliminates damage which might result from tampering by unauthorized parties or by unskilled handling. In addition to this safety precaution, a floating armature type of 3-pole contactor is employed which provides smooth and positive contact. This is quiet in operation and the tips are kept clean by the rolling and wiping action of their closure.

Where operating conditions necessitate the protection of the starter against an accumulation of chips or other foreign matter, a door interlock may be had that makes it impossible to start the motor unless the cabinet door is firmly closed. The non-reversing starters, class 11-160, are applicable for many machine drives where dirt and dust is encountered, such as in textile mills, on machine tools, wood-working machinery, conveyors, blowers, pumps, tipple machinery and the like. The reversing type, class 11-165, embodies the same sturdy and safe construction and the same essential operating characteristics as the non-reversing type, but in addition the mechanical interlock above referred to, making it impossible for the contactors to be closed unless the door is shut. This type has its obvious advantages which need no further comment.



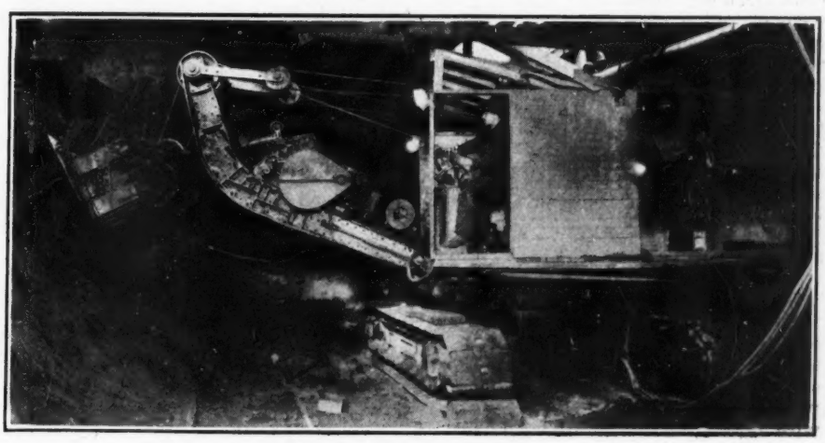
Starter and Cabinet

Removal of two screws permits the contactor to be removed from its steel cabinet, thus leaving the whole inside of the cabinet free for the insertion and installation of the wiring. An electrical interlock with the door may be installed rendering it impossible to close the contacts unless the door has likewise been previously shut.

Burrowing Power Shovel

In the accompanying illustration may be seen a power shovel that is particularly adapted to low headroom such as is encountered in coal mines. This is a Marion standard type No. 21 machine fitted with a bow-shaped boom. It is built by the Marion Steam Shovel Co. of Marion, Ohio.

This machine is obviously a tunneler and has been operated underground in as little as 11 ft. of headroom. It is pointed out by the builder that because



Surface Shovel Evolves into Underground Unit

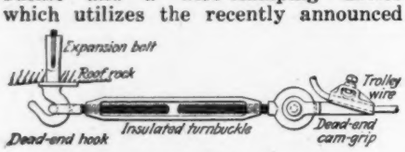
Subway and other tunnel contracting work is causing a rapid change in the upstanding steam shovel. It is learning to stoop. This one also crawls. It will work in a place only 11 ft. high and with non-combustible cab should prove fitted for thick coal beds.

of its short boom and dipper stick and the consequent shortness of its swing, it loads cars with great rapidity. The shovel in the illustration is owned by the Oakdale Contracting Co. of Brooklyn, N. Y., and is being used in subway construction. Electric shovels of this type, however should be useful in loading coal in mines where sufficient headroom is afforded.

Dead-End Assembly Saves Trolley Wire

To fill the need for a simple, yet substantial and complete device for terminating trolley lines, the Ohio Brass Co., of Mansfield, Ohio, has placed on the market parts for a new dead-end assembly.

This device consists of a heavy malleable-iron hook which can be affixed to the standard overhead hanger or expansion bolt, an insulated turnbuckle and a wire-clamping device which utilizes the recently announced



Simple Dead-End Assembly

Simplicity is the key note of this device. It consists of a hook fitted with an expansion bolt that may be anchored in the roof, an insulated turnbuckle and a trolley-wire grip.

cam-type grip. This latter is of particular value in the assembly as it eliminates all the waste of wire usually entailed where dead ends are formed by bending or looping trolley wire around some rigid support.

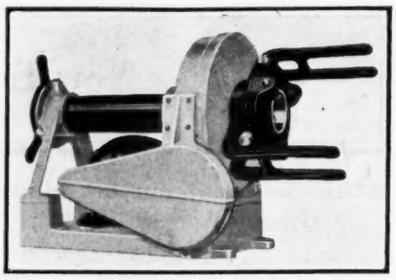
This new dead-end assembly is equally useful for permanent and temporary installations. It can be removed with ease and used over and over as the line is extended. A material saving in time and labor is said to result from the employment of this handy device.

Portable Power Pipe Threader

Threading pipe by hand is always a more or less laborious operation depending somewhat on the size of the pipe. In any case it is slow. To obviate this difficulty the Oster Mfg. Co., of Cleveland, Ohio, has recently developed and placed on the market the new light weight model, power drive pipe threader shown in the accompanying illustration.

As may be seen, the body of this machine is made almost exclusively of aluminum allow which is not only stronger and more durable than the cast-iron formerly used, but is much lighter. The new machine weighs only 150 lb. and is therefore a really portable unit in its entirety.

Motive power for this machine is furnished by a ½-hp. reversible universal motor which automatically speeds up on the smaller sizes of pipe yet maintains the necessary speed on the larger sizes. This gives the outfit a greater productive capacity than would otherwise be the case. This motor can be run from any 110 or 115-volt lighting circuit either direct or single phase alternating current, of any frequency. Its reversibility makes it possible to



Threads Pipe with Ordinary Die

This machine is driven by a small, reversible universal motor. It will thread pipe of all sizes up to 2 in. or by the aid of an attachment up to 6 in. It may also be used to make up fittings and couplings.

use almost any die stock in connection with the machine.

This machine has the capacity to drive any die stock or pipe cutter up to 2 in., but with a special auxiliary drive shaft (which can be furnished) geared die stocks or cutters up to 6-in. may be handled. In addition to this, the machine may be used to screw up fittings as a pipe wrench can be held by its driving arms and rotated the same as a pipe die.

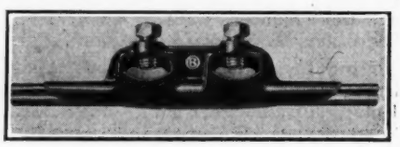
The pipe to be threaded is held stationary in a three-jawed, self-centering chuck and the pipe tools are turned by the driving arms. Self-centering universal guides in the rear of the machine assist the chuck in centering long lengths of pipe. An idea of the compactness of this device may be gained from the fact that it is only 18⅛ in. high, 14½ in. wide and 30⅜ in. long.

Splicer with Cam-Grip Holds Trolley Wire Tight

A cam-grip splicer for securing the ends of trolley wires and based on a new principle is a recent development of the Ohio Brass Co., of Mansfield, Ohio. The operation of this splicer depends upon the action of a serrated cam on the trolley wire rather than on the direct pressure of set screws. The cam or dog is of hardened steel carrying milled teeth. It is confined in a pocket in the body of the splicer and is held down against the trolley wire by means of a single heavy hardened steel set screw.

The eccentric action of this cam comes into play when the wire is pulled, so that the greater the tension on the wire, the stronger becomes the grip. The strength is not dependent on the force used in tightening the set screw but upon the wedging action of the dog when the wire is in tension.

The wires enter cored holes in the body casting and the lips are formed by a V-shaped opening in the underrun, ground to a taper toward the ends of the splicer. No peening of the lips is necessary as the opening is made for a snug fit around the wire. The cam forces the wire down against the bottom of the opening with the result that there is said to be an easy transition of the trolley wheel onto and off of the splicer.



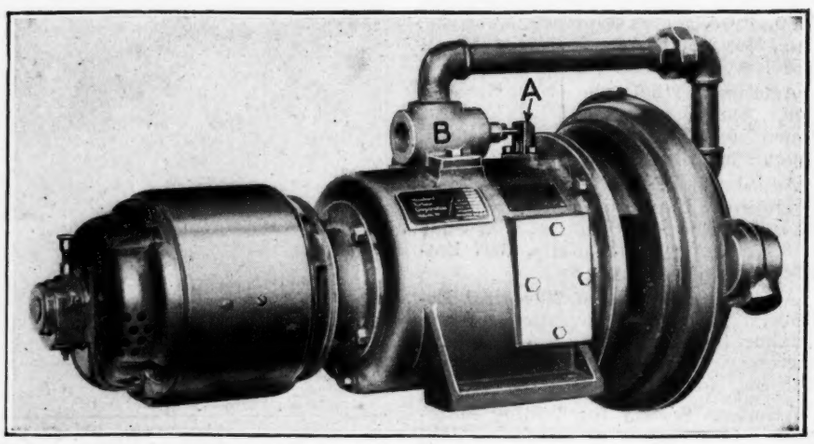
Steel Teeth Bite Into Copper Wire with Bulldog Grip

In this splicer the cap screws do not bear on the trolley wire direct but through rocking cams provided with milled teeth. The greater the tension pulling the two wires apart the firmer the grip of these cams.

An Emergency Lighting Unit

A turbo-generator set in sizes from ½ to 10 kw., designed especially for use as an emergency lighting unit for the power station, is a recent development of the Standard Turbine Corporation, Scio, N. Y. The unit is arranged to start automatically when for some reason the regular light supply on the station fails, automatic starting being accomplished by means of an electrically operated shutoff valve in the turbine steam line.

The set is similar in construction to the regular line of small lighting sets built by this company except for the governor, which is of special design and which operates in the oil space of the bearing pedestal. The steam governing valve *B* is fastened directly to the top of the turbine and connects with the governor through the lever *A*. The generator is made an integral part of the turbine, which tends to reduce the over-all size for a given capacity.



Emergency Lighting Unit Designed for Automatic Starting

Starts automatically when regular light supply of station fails, the automatic starting being accomplished by an electrically operated shutoff in the turbine steam line.